

**Affinity for Aloneness and Shyness in Childhood and Adolescence: Differential
Longitudinal Associations with Socio-emotional Adjustment**

By

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Abstract

Affinity for aloneness (AFA), a tendency to prefer to spend more time alone rather than with others, is assumed to be driven by low social interest rather than by social fears. This is unlike shyness, which is underpinned by a conflict between high social interest and pervasive social apprehension and weariness. Despite the marked motivational differences between these two subtypes of social withdrawal and their potential differential impact on socio-emotional adjustment in childhood and adolescence, AFA is empirically neglected compared to shyness. Shyness was extensively studied and repeatedly linked to a host of negative socio-emotional correlates such as depression, lower social skills, lower self-esteem and peer maltreatment. However, little is known about the socio-emotional impact of AFA on children and adolescents, particularly longitudinally. Despite clear evidence, AFA was suspected as maladaptive due to its affiliation with social withdrawal, a wide umbrella term that has been tied to internalizing problem and peer difficulties. The generalization of findings regarding social withdrawal as a whole to AFA may lead to a pathologization of a normative behavior, increase instances of unnecessary intervention, and inadvertently negatively impact otherwise intact socio-emotional development of children and adolescents. The scarce available knowledge about AFA stems from several persisting gaps in the literature. First, there is insufficient systematic differentiation among subtypes of social withdrawal, and a lack of deliberate simultaneous measurement of specific constructs such as shyness and AFA. Second, there are very few longitudinal studies of both shyness and AFA across childhood and adolescence. Third, there is a lack of contextual investigation of AFA compared to shyness in common life setting in which children tend to spend much of their time, such as organized sports activities. My doctoral dissertation specifically addressed all of the aforementioned gaps in the literature. Results of Study 1, a

longitudinal study spanning from Grade 3 to Grade 5, indicated that only shyness, but not AFA, was significantly related to lower social skills and greater peer victimization across time. Study 2 utilized Latent Class Analysis and results indicated that adolescents in Grades 11 and 12 who were high on AFA and low on shyness did not differ from adolescents low on both AFA and shyness (a non-withdrawn group) on measures of socio-emotional adjustment. In Study 3, results of Structural Equation Modeling (SEM) indicated that only shyness, but not AFA, was related to lower positive activity outcomes through lower psychological engagement in the activity. In aggregate, the findings of the present doctoral studies advance the literature on AFA in meaningful ways. Most notably, AFA emerged as a largely benign form of social withdrawal across middle childhood and adolescence. Moreover, Study 2, which appears to be the first person-centered investigation of AFA in adolescence using Latent Class Analysis, provided novel evidence that AFA and shyness are distinct constructs with unique implication for socio-emotional adjustment. These findings carry applied implication for educators and parents seeking to facilitate optimal developmental contexts for children with an AFA.

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“In the discipline of living alone, in the service of hermits, it is the silence of solitude that is wisdom. When the solitude becomes a source of pleasure”.

- *Nalaka Sutta, The Sutta-Nipata*

“How much better is silence; the coffee cup, the table. How much better to sit by myself like the solitary sea-bird that opens its wings on the stake. Let me sit here for ever with bare things, this coffee cup, this knife, this fork, things in themselves, myself being myself.”

- Virginia Woolf, *The Waves*

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Chapter 1: General introduction

Individual differences in the tendency to prefer to spend time alone rather than with others is commonly referred to as *affinity for aloneness* (AFA). AFA has long been known in popular culture as an important part of human experience (Long & Averill, 2003). In this context, solitude is regularly practiced by spiritual leaders, artists and scientists and is associated with creativity, enlightenment and scientific breakthroughs (Storr, 2005; Suedfeld, 1982). Buddhist philosophy, for example, differentiates between solitude of the body and solitude of the mind and postulates that the ability to maintain mental solitude is the basis for important intrapersonal processes (Chalmers, 1997). Further, Nietzsche has written on the merits of solitude for the creative process and treated it as a philosophical instrument essential for reflecting on the self and society (Kaufmann, 1968).

The qualities of time spent alone have also captured the interest of scholars in modern psychology. For instance, Winnicott (1958) claimed that the capacity to be alone is one of the most important signs of emotional maturity. Maslow (1954) postulated that self-actualized individuals enjoy solitude and regularly devote time to being alone in order to cultivate personal growth. More recent scholars have suggested that time spent in solitude is necessary for healthy development (Buchholz & Tomasi, 1994; Larson, 1990).

Despite continued scholarly interest in aloneness and its possible merits for human development, surprisingly little recent research has been focused on individuals with a greater than average inclination towards aloneness, characteristic of AFA (Larson, 1990). In particular, AFA is under-studied in childhood and adolescence. Therefore, the overall goal of my thesis is to investigate the correlates between AFA and socio-emotional adjustment in childhood and in adolescence in order to expand the currently limited knowledge base on the topic.

Childhood and adolescence are life stages that entail multiple developmental milestones and their successful achievement is often greatly influenced by social interactions with peers (Rubin, Coplan, Bowker & Menzer, 2004). Therefore, it is important to understand whether the socio-emotional adjustment of children and adolescents with an AFA could be negatively affected by their preference to spend more time alone than with others.

Asendorpf (1990) has conceptualized AFA as a non-fearful subtype of *social withdrawal*. Social withdrawal in childhood and adolescence is broadly defined as the display of solitary behaviors in social situations among familiar and unfamiliar others. These solitary behaviors differ in their underlying motivations. For instance, in shyness, a fearful subtype of social withdrawal, children move away from others due to social fears but not due to lack of social interest. In contrast, AFA entails low social interest that is not accompanied by social wariness. Shyness has been repeatedly associated with internalizing problems and peer difficulties (Coplan & Arbeau, 2008; Findlay, Coplan & Bowker, 2009; Gazelle & Ladd, 2003), while findings regarding the developmental implications of AFA have been mixed. For instance, several studies suggest that AFA is benign to socio-emotional development (Asendorpf & Meier, 1993; Coplan & Weeks, 2010b), while others have reported associations with peer difficulties (Ding, Weeks, Liu, Sang & Zhou, 2015). These contradictory findings could be attributed to several gaps in the research literature.

First, there has been a lack of systematic, theory-based differentiation between subtypes of social withdrawal. Multiple researchers have considered only social withdrawal in general and linked it to negative implications for adjustment (e.g., Booth-Laforce & Oxford, 2008; Oh, Rubin, Bowker, Booth-LaForce & Rose-Krasnor, 2008). The conclusions of such studies have been extended to all subtypes of social withdrawal. However, the results may have been driven

by the fearful subtypes of social withdrawal, such as shyness, and therefore are not generalizable to non-fearful subtypes, such as AFA.

Second, there have been few rigorous longitudinal studies of the implications of different subtypes of social withdrawal, which constrains researchers' ability to draw causal conclusions. For example, cross-sectional studies in which a positive association between AFA and peer victimization (e.g., Ding et al., 2015) were reported could be interpreted in several ways. It is possible that AFA led to an increase in peer victimization but also that peer victimization led to an increase in AFA. Thus, it is important to establish a time order and measure the bi-directional effects between predictors and outcomes.

Third, investigation of subtypes of social withdrawal in specific contexts may provide important information. For example, organized sports activities have been identified as beneficial for healthy development (Wright & Cote, 2003). However, organized sports rely heavily on active social participation (Larson & Seepersad, 2003; Smith, 2003) and therefore socially withdrawn children may find it difficult to participate. Indeed, shy children were found to have difficulties engaging in organized sports activities (e.g., Miller, 2012). However, to my knowledge, the impact of AFA on sport participation has not yet been investigated.

In addition to these gaps in the literature, another challenge to the study of non-fearful social withdrawal arises from inconsistency in nomenclature. Three terms are commonly used in the literature to denote non-fearful social withdrawal: *affinity for aloneness*; *preference for solitude* and *unsociability*. These three terms seem to represent a disconnection between research paradigms that investigate the phenomena in different life stages. *Unsociability* is most commonly used by researchers focusing on early-middle childhood (e.g., Coplan & Weeks, 2010a), *preference for solitude* was used in several studies of adolescents (e.g., Wang, Rubin,

Laursen, Booth-LaForce & Rose-Krasnor, 2016) and *affinity for aloneness* is used by researchers focusing on adulthood (Bowker, Markovic, & Luster, 2014), as well as adolescence (Goossens, Lasgaard, Luyckx, Vanhalst, Mathias, & Masy, 2009).

Unsociability has a negative connotation and it implies the opposite of sociability. However, many of those who show non-fearful social withdrawal have apt social skills and are as likely as non-withdrawn individuals to cultivate close friendships (Asendorpf & Meier, 1993; Rubin, Wojslawowicz, Rose-Krasnor, Booth La-Force & Burgess et al., 2006). *Preference for solitude* is a more neutral term than unsociability but it does not denote a positive attitude towards aloneness, a key characteristic of non-fearful social withdrawal (Leary, Herbst & McCrary, 2003). *Affinity for aloneness*, on the other hand, clearly implies that those who choose to be alone do so based on a favorable attitude towards aloneness. To most accurately reflect the characteristics of the construct, I will use the term “affinity for aloneness” to describe non-fearful social withdrawal in the first two studies reported herein. However, to be consistent with the name of the measure used to assess non-fearful social withdrawal, I will use the term “unsociability” in reporting the third study.

The present series of studies was designed to address the aforementioned gaps in the literature and to promote a more consistent understanding of the potential developmental associations with AFA from childhood to adolescence. Specifically, Study 1 was a longitudinal study (Grades 3 to 5) of a diverse US sample, in which shyness and AFA were measured simultaneously to isolate their unique bi-directional effects on socio-emotional adjustment. Study 2 was a longitudinal investigation of a Canadian sample of adolescence (Grades 11 to 12) that utilized a person-centered approach to data analysis. A person-centered analysis allowed me to establish the multi-dimensional occurrences of shyness and AFA in adolescence and study their

unique associations with socio-emotional adjustment. Finally, Study 3 was designed to investigate the differential pathways of AFA and shyness in sport participation among young children.

Due to common concerns of parents and educators about social withdrawal in children and adolescents, the current research could have practical implications for treatment and intervention. Specifically, it could help determine which cases of social withdrawal require intervention and which cases are normative. Therefore, the current studies could help mitigate potential over-pathologization of social withdrawal and prevent unwarranted interventions aimed at reducing solitary behavior that might cause unnecessary harm (Aho, 2010).

As the first author of the three studies, I have conceived the research questions, hypotheses and study designs. The statistical analyses were done independently, as well as in collaboration with my supervisor and a graduate committee member. I have independently written the full drafts of all three studies.

A developmental perspective on affinity for aloneness and shyness and distinct types of social withdrawal

Throughout development there are multiple reasons for individuals to be alone and the degree to which this behavior is considered normative depends on multiple factors such as age, setting and motivation. For instance, in parallel play, children do not play with each other, but rather near each other, with little reciprocal behaviors. Such play behavior is typical and normative in the early preschool years (Vandell, Wilson & Buchanan, 1980). However, by the third year of life, peer interactions become more focused on reciprocal social exchanges (Eckerman & Peterman, 2001). Interestingly, at these young ages there already is significant

variability in the tendency of infants and children to systematically engage with peers. While some children are highly social and tend to frequently initiate social interactions, others rarely do so and appear to be naturally inclined towards aloneness (Parker, Rubin, Erath, Wojslawowicz & Buskirk, 2006). Such individual differences continue into late childhood and adolescence (Coplan, Prakash, O'Neil & Armer, 2004; Long & Averill, 2003).

To understand aloneness throughout the lifespan, it is important to distinguish between social withdrawal which is externally, versus internally, imposed. When aloneness is externally imposed by peers, children and adolescents are in a state of active isolation that is not volitionally chosen (Rubin, 1982). This is in contrast to children who isolate themselves based on internal factors. Internal motivations that lead to aloneness are also diverse (Asendorpf, 1990). Previous research has identified subtypes of social withdrawal and suggested that solitary behaviors may have differential motivational underpinnings (Asendorpf, 1990; Schmidt & Fox, 1995). Specifically, individual differences in approach-avoidance motivations emerged as a determinant of heterogeneity in social withdrawal. For instance, shy children have a high approach motivation manifested in social interest and desire to interact with others. At the same time, however, they also experience high avoidance motivation that is manifested in feelings of anxiety and fear in social situations. Thus, shy children may experience an approach-avoidance conflict, which leads them to withdraw from others (Asendorpf, 1990). In contrast, those with an AFA have low approach motivation due to low social interest, combined with low avoidance motivation, which is manifested in a lack of social fears. Thus, individuals with an AFA do not experience a conflict between their social interests and their ability to perform appropriately in social situations (Asendorpf, 1990). Importantly, children with an AFA, as opposed to children

with shyness, were found to have comparable social skills to non-withdrawn children (Asendorpf & Meier, 1993).

In relation to the potential developmental impact of subtypes of social withdrawal, AFA is markedly under-researched in comparison to shyness. For instance, across childhood and adolescence, shyness has been linked to loneliness, negative emotionality, lower quality of peer relationships, lower social competence and poorer academic performance (Coplan & Arbeau, 2008; Findlay et al., 2009; Gazelle & Ladd, 2003). In comparison, the body of literature devoted to the investigation of AFA as a distinct subtype of social withdrawal is small and the developmental understating of the phenomena is limited. In general, most scholars agree that AFA is benign in early childhood (Coplan et al., 2004) but there is a debate regarding its implications in middle to late childhood, as well as in adolescence (Coplan & Weeks, 2010a).

In several cross-sectional studies, it was reported that children with an AFA were not disadvantaged in terms of socio-emotional adjustment compared to non-withdrawn children. For instance, Asendorpf and Meier (1993) found that children with an AFA (the term *unsociable* was used in the original article, and in all the following articles cited in this paragraph) in the second grade did not differ from non-withdrawn classmates on verbal participation in conversations. Harrist, Zaia, Bates, Dodge and Pettit (1997) reported that young children with an AFA did not differ from non-withdrawn peers on measures of social and cognitive adjustment, despite spending greater time in solitude. Ladd, Kochenderfer-Ladd, Eggum, Kochel, and McConnell (2011) conducted a short-term longitudinal study among 10-year-old children and reported that AFA, as compared to shyness, was related to better friendship quality and less peer victimization.

Conversely, links between AFA and peer difficulties were reported in several studies. For instance, Coplan and Weeks (2010b) studied internalizing problems and peer difficulties in 8-year-old children. They reported that children with an AFA were comparable to non-withdrawn children on internalizing problems. However, boys with an AFA were found to be more prone to peer difficulties than non-withdrawn children. Coplan et al., (2013) investigated 9-12 year-olds in a cross-sectional study and reported that children with an AFA were comparable to non-withdrawn peers on measures of internalizing problems. However, AFA was indirectly linked with peer difficulties through negative peer responses. Coplan, Girardi, Findaly and Frohlick (2007) reported that children rated peers with an AFA as less desirable playmates, when presented with hypothetical vignettes. To conclude, the available research has not yielded a consistent understanding of the impact of AFA on socio-emotional adjustment in middle childhood.

Even less is known regarding how adolescents with an AFA fare with regard to socio-emotional adjustment. The frequency of time spent alone tends to increase among adolescents (Averill & Long, 2003) and constructive time spent in solitude has been related to positive identity formation (Larson & Richards, 1991). Notwithstanding this research pointing to the merits of aloneness, peer interactions remain instrumental to healthy development (La Greca & Harrison, 2005). Given that adolescents with an AFA are likely to spend greater than average time alone, it is important to investigate if they experience any socio-emotional costs.

Existing studies on the topic have shown mixed results. For example, Bowker and Raja (2011) reported that AFA (unsociability in the original study), in contrast to shyness and avoidance, was not uniquely associated with peer exclusion or victimization in their Indian sample (*Age* = 13.35 yrs.). Wang et al., (2013) reported that AFA (*preference for solitude* in

the original study) was related to greater anxiety, depression, emotion dysregulation and lower self-esteem in Grade 8 but these associations became insignificant by Grade 12. Teppers, Luyckx, Vanhalst, Klimstra and Goossens (2014) compared adolescents with an AFA to adolescents with an aversion to aloneness, as well as those who were indifferent to it. They reported that adolescents with an AFA were better adjusted in terms of internalizing symptoms and coping, compared to the aloneness aversion group. Nelson (2013) reported that AFA in late adolescence ($M_{age}=19.6$), as compared to avoidance and shyness, was not related to negative implications for relationship quality or internalizing problems, excluding depression and friendship with best friend. However, the associations with depression and lower best friendship quality were weaker among the AFA group compared to the shy and avoidant groups. In contrast to these findings, Ding et al., (2014) found a significant positive association between AFA and peer victimization among Chinese early adolescents ($M_{age}=12.55$).

To conclude, the available research is not definitive regarding the impact of AFA on socio-emotional adjustment in childhood and adolescence. Moreover, because the available studies almost exclusively utilized concurrent cross-sectional designs, the direction of effects cannot be established. Thus, there is no conclusive evidence to determine whether there is a worsening in the implications of AFA for development from early childhood to adolescence.

The scarce longitudinal studies that do exist did not differentiate between subtypes of social withdrawal. This failure to differentiate could explain, in part, the perception of AFA as increasingly maladaptive with age. In several longitudinal studies, it was reported that social withdrawal is associated with multiple negative outcomes such as low self-esteem, internalizing problems, loneliness, depression and anxiety (Boivin, Hymel & Bulowski, 1995; Gazzelle and Ladd, 2003; Rubin, Coplan & Bowker, 2009). Moreover, children who experienced an increase

in social withdrawal over time were lonelier and more excluded than were children with decreasing levels of withdrawal and non-withdrawn children (Booth-LaForce & Oxford 2008; Oh et al., 2008).

AFA has behavioral commonalities with loneliness and exclusion because all involve greater frequency of being alone. However, these instances of aloneness have different motivational sources and therefore their bundling as a unified phenomenon is inaccurate. If conclusions are to be drawn from studies on social withdrawal as a whole, every display of solitary behavior may be seen to warrant intervention. However, in actuality, the child or adolescent might be content with their social preference and be normally developing. An intervention that would encourage greater social exposure among those with an AFA might invoke unpleasant feelings, self-doubt and an overall negative impact on otherwise intact social functioning. Thus, it may be highly important to differentiate between subtypes of social withdrawal when studying associations with adjustment.

Moreover, there is evidence suggesting that shyness is independent from AFA (Schmidt & Fox, 1995), which poses a theoretical limitation to the use of global measurement of social withdrawal. As early as 1981, Cheek and Buss reported that low and high levels of sociability could co-occur with high or low levels of shyness to create four distinct groups: high on shyness and low on sociability, low on shyness and high on sociability, high on both and low on both. Sociability has been defined as the degree to which one prefers to be with others to remaining alone (Cheek & Buss, 1981). High sociability is manifested in affinity to being with others and low sociability is manifested in affinity to being alone. Therefore, low sociability may be considered as akin to AFA.

Cheek and Buss (1981) found that the group low on shyness and high on sociability was comparable to the group low on both sociability and shyness on measures of social competence. These results are in line with Asendorpf and Meier (1993) who reported intact social skills in children with an AFA. Similar results supporting the distinction between shyness and sociability were later demonstrated on a physiological level in studies of children (Tang, Santesso, Segalowitz & Schmidt, 2016) and young adults (Schmidt & Fox, 1994).

Despite these findings, nearly all the studies on shyness and AFA did not take into account the multidimensional nature of these constructs in measurement and interpretation of results. When treating shyness and AFA as linearly connected there is an over-representation of individuals who are low on both shyness and AFA (low correlation), or high on both (high correlation), and an under-representation of individuals who are low on AFA and high on shyness or low on shyness and high on AFA. Therefore, the negative socio-emotional correlates that were reported in relation to AFA may have been driven in part by shyness (e.g., Ding et al., 2014).

To address these gaps in the literature, I have carried out two longitudinal studies. In Study 1, I studied a sample of US children across three time points (Grades 3, 4 and 5) and simultaneously measured AFA and shyness to control for their shared variances and within variable changes across time. Data was analyzed using an auto-regressive cross-lagged model, which enables the assessment of bi-directional effects between the predictors (AFA and shyness) and the socio-emotional outcomes across time.

In Study 2, I analyzed a longitudinal sample of Canadian adolescents from Grade 11 to Grade 12 and utilized a person-centered approach to data analysis. This allowed me to provide

the first demonstration of AFA and shyness as distinct constructs in adolescence and to examine the associations of these distinct profiles with adjustment.

In Study 3 I sought to investigate whether individual differences in AFA and shyness correlate with adaptive functioning in a common social context in children's lives – organized extracurricular activities.

Affinity for aloneness in the context of after-school organized activities

Organized activities are a potentially rich developmental context for children and adolescents. However, there is no empirical knowledge regarding the adjustment of those with an AFA in this environment. Conducting such research is important because the vast majority of children and adolescents in North America participate in extracurricular activities (Simpkins, Vest, Dawes & Neuman, 2010), a practice that has been widely linked to positive psychological development (Kirkcaldy, Shephard & Siefen, 2002; Busseri, Rose-Krasnor, Willoughby & Chalmers, 2006). A myriad of developmental benefits have been reported in association with organized activity engagement, including improved relationships with peers and family, higher self-esteem, reduced risk behaviors, academic orientation and psychological well-being (e.g., Barber, Eccles & Stone, 2001; Hansen, Larson & Dworkin, 2003).

Many of the organized after-school activities, such as sports, have a strong social component and they often rely on teamwork and cooperation. These social components have been linked to positive activity outcomes (Larson & Seepersad, 2003). However, children with an AFA might show diminished interest and engagement in activities with a strong social component and be less motivated to participate effectively and successfully than are non-withdrawn children. This could elicit a negative response from peers and coaches, which could

then lead to a negative emotional experience. Additionally, AFA might lead children to avoid participation in organized activities altogether. Since participation in after-school sports activities has been shown to have positive developmental outcomes (Fraser-Thomas, Cote & Deakin, 2005), avoiding these activities might put unsociable children at a disadvantage.

Despite the potential risk for negative emotional experiences and peer rejection that activity participation might pose for children with an AFA, it might also offer them opportunities to socialize and experience developmentally important interactions with peers.

Thus, it is important to know more about how children with an AFA, compared to children with shyness, participate in organized sports activities and attempt to identify an adaptive pattern of participation for these children. For instance, children with an AFA were described as more object-oriented than person-oriented (Coplan & Armer, 2007); therefore, they might benefit more from activities in which children perform in parallel (e.g., swimming, gymnastics) rather than as a group (e.g., hockey, soccer). If sports activity engagement emerges as a protective factor for children with an AFA, it could serve as a form of an affordable and accessible intervention and give a solution for parents who seek to provide these children with a favorable context for development.

To provide preliminary answers to these questions, I have carried out Study 3, in which I measured the differential associations between shyness and AFA in middle childhood, psychological engagement in sports and positive activity outcomes.

The current studies

The aims of the three studies comprising the current thesis is to distinguish between shyness and AFA in middle childhood and adolescence, as well as to investigate possible associations between AFA and socio-emotional adjustment at each age group.

Study 1 is based on data from the Study of Early Child Care and Youth Development (SECCYD), supported by the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD). Data on shyness, AFA and socio-emotional adjustment were analyzed at three time points (Grades 3-5) using an auto-regressive cross-lagged longitudinal design. This statistical method allows to control for year-over-year changes within each variable and to account for the bi-directional effects between predictors and outcomes. I hypothesized that shyness, but not AFA, would be associated with lower social adjustment over time (variables included social skills, friendship quality and peer victimization).

Study 2 is based on data collected in Dr. Teena Willoughby's lab at Brock University, as a part of a larger study that followed high school students in the Niagara Region of Ontario, Canada. The main aim of this study was to use Latent Class Analysis (LCA) to investigate whether levels of AFA and shyness are distinct in adolescence (Grades 11 and 12). I hypothesized that a four-group typology would emerge in the adolescent sample at Grade 11: low AFA and low shyness, high AFA and low shyness, high AFA and high shyness and low AFA and high shyness. Further, I hypothesized that the high AFA-low shyness group would not differ from the low AFA-low shyness group on measures of socio-emotional adjustment concurrently (Grade 11) and one year later at Grade 12 (variables included self-esteem, depression, life satisfaction, friendship quality and stress).

Study 3 is a cross-sectional study based on data collected by Dr. Robert J. Coplan's lab at Carleton University, in conjunction with Dr. Linda Rose-Krasnor's lab at Brock University. The main aim of this study was to provide a first and basic examination of the hypothesis that shyness and AFA in middle childhood would differ from each other in the context of organized sports activities. I hypothesized that shyness, but not AFA, would be negatively associated with psychological engagement in sports and with positive activity outcomes.

Taken together, these studies were intended to bring more clarity into AFA across childhood and adolescence, an important yet understudied facet of social functioning.

References

- Aho, K. (2010). The psychopathology of American shyness: A hermeneutic reading. *Journal for the Theory of Social Behaviour*, 40(2), 190-206. doi: 10.1111/j.1468-5914.2009.00425.x.
- Asendorpf, J. B. (1990). Beyond social withdrawal: Shyness, unsociability, and peer avoidance. *Human Development*, 33(4-5), 250-259. doi:10.1159/000276522.
- Asendorpf, J. B., & Meier, G. H. (1993). Personality effects on children's speech in everyday life: sociability-mediated exposure and shyness-mediated reactivity to social situations. *Journal of Personality and Social Psychology*, 64(6), 1072. doi: 10.1037/0022-3514.64.6.1072.
- Asendorpf, J. B., & Meier, G. H. (1993). Personality effects on children's speech in everyday life: sociability-mediated exposure and shyness-mediated reactivity to social situations. *Journal of Personality and Social Psychology*, 64(6), 1072. doi: 10.1037/00223514.1072.
- Barber, B. L., Eccles, J. S., & Stone, M. R. (2001). Whatever happened to the jock, the brain, and the princess? Young adult pathways linked to adolescent activity involvement and social identity. *Journal of Adolescent Research*, 16(5), 429-455. doi: 10.1177/0743558401165002.
- Boivin, M., Hymel, S., & Bukowski, W. M. (1995). The roles of social withdrawal, peer rejection, and victimization by peers in predicting loneliness and depressed mood in childhood. *Development and Psychopathology*, 7(04), 765-785. doi: 10.1017/S0954579400006830.

- Booth-LaForce, C., & Oxford, M. L. (2008). Trajectories of social withdrawal from grades 1 to 6: prediction from early parenting, attachment, and temperament. *Developmental psychology*, 44(5), 1298. doi: 10.1037/a0012954.
- Bowker, J. C., & Raja, R. (2011). Social withdrawal subtypes during early adolescence in India. *Journal of Abnormal Child Psychology*, 39(2), 201-212. doi: 10.1007/s10802-010-9461-7.
- Bowker, J. C., Nelson, L. J., Markovic, A., & Luster, S. (2014). Social withdrawal during adolescence and emerging adulthood. In R.J. Coplan & J.C. Bower (Eds.), *The handbook of solitude* (pp. 167-184). doi: 10.1002/9781118427378.ch1.
- Buchholz, E. S., & Tomasi, S. (1994). Differentiating aloneness from loneliness: The alone state in theory and research. *Unpublished manuscript*.
- Busseri, M. A., Rose-Krasnor, L., Willoughby, T., & Chalmers, H. (2006). A longitudinal examination of breadth and intensity of youth activity involvement and successful development. *Developmental Psychology*, 42(6), 1313. doi: 10.1037/0012-1649.42.6.1313.
- Chalmers, R. (1997). *Buddha's Teachings Being The Sutta-Nipata Or Discourse Collection* (Vol. 37). Delhi: Motilal Banarsidass Publ.
- Cheek, J. M., & Buss, A. H. (1981). Shyness and sociability. *Journal of Personality and Social Psychology*, 41(2), 330. doi: 10.1037/0022-3514.41.2.330.
- Coplan, R. J., & Arbeau, K. A. (2008). The stresses of a "brave new world": Shyness and school adjustment in kindergarten. *Journal of Research in Childhood Education*, 22(4), 377-389. doi: 10.1080/02568540809594634.

- Coplan, R. J., & Armer, M. (2007). A “multitude” of solitude: A closer look at social withdrawal and nonsocial play in early childhood. *Child Development Perspectives*, 1(1), 26-32. doi: 10.1111/j.1750-8606.2007.00006.x.
- Coplan, R. J., & Weeks, (2010). Unsociability and the preference for solitude in childhood. In H.K. Rubin & R.J. Coplan (Eds.) *The development of shyness and social withdrawal* (pp.64-84). New York: The Guilford Press.
- Coplan, R. J., & Weeks, M. (2010). Unsociability in middle childhood: Conceptualization, assessment, and associations with socioemotional functioning. *Merrill-Palmer Quarterly*, 56(2), 105-130.
- Coplan, R. J., Arbeau, K. A., & Armer, M. (2008). Don’t fret, be supportive! Maternal characteristics linking child shyness to psychosocial and school adjustment in kindergarten. *Journal of Abnormal Child Psychology*, 36(3), 359-371.
- Coplan, R. J., Girardi, A., Findlay, L. C., & Frohlick, S. L. (2007). Understanding solitude: Young children's attitudes and responses toward hypothetical socially withdrawn peers. *Social Development*, 16(3), 390-409. doi: 10.1007/s10802-007-9183-7.
- Coplan, R. J., Prakash, K., O'Neil, K., & Armer, M. (2004). Do you" want" to play? Distinguishing between conflicted shyness and social disinterest in early childhood. *Developmental Psychology*, 40(2), 244. doi: 10.1037/0012-1649.40.2.244.
- Coplan, R. J., Rose-Krasnor L., Weeks M., Kingsbury A., Kingsbury M., and Bullock A. (2013). Alone is a crowd: Social motivations, social withdrawal, and socioemotional functioning in later childhood. *Developmental Psychology* 49, no. 5: 861. doi: 10.1037/a0028861.

- Ding, X., Weeks, M., Liu, J., Sang, B., & Zhou, Y. (2015). Relations between unsociability and peer problems in Chinese children: Moderating effect of behavioral control. *Infant and Child Development*, 24(1), 94-103. doi: 10.1002/icd.1864.
- Eckerman, C. O., & Peterman, K. (2001). Peers and infant social/communicative development. In G. Bremner & A. Fogel (Eds.), *Blackwell handbook of infant development* (pp. 167-183). Oxford: Blackwell Publishers Ltd.
- Findlay, L. C., Coplan, R. J., & Bowker, A. (2009). Keeping it all inside: Shyness, internalizing coping strategies and socio-emotional adjustment in middle childhood. *International Journal of Behavioral Development*, 33(1), 47-54. doi: 10.1177/0165025408098017.
- Fraser-Thomas, J. L., Côté, J., & Deakin, J. (2005). Youth sport programs: An avenue to foster positive youth development. *Physical Education & Sport Pedagogy*, 10(1), 19-40. doi: 10.1080/1740898042000334890.
- Gazelle, H., & Ladd, G. W. (2003). Anxious solitude and peer exclusion: A diathesis–stress model of internalizing trajectories in childhood. *Child Development*, 74(1), 257-278. doi: 10.1111/1467-8624.00534.
- Goossens, L., Lasgaard, M., Luyckx, K., Vanhalst, J., Mathias, S., & Masy, E. (2009). Loneliness and solitude in adolescence: A confirmatory factor analysis of alternative models. *Personality and Individual Differences*, 47(8), 890-894d. doi: 10.1016/j.paid.2009.07.011.
- Hansen, D. M., Larson, R. W., & Dworkin, J. B. (2003). What adolescents learn in organized youth activities: A survey of self-reported developmental experiences. *Journal of Research on Adolescence*, 13(1), 25-55. doi: 0.1111/1532-7795.1301006.

- Harrist, A. W., Zaia, A. F., Bates, J. E., Dodge, K. A., & Pettit, G. S. (1997). Subtypes of social withdrawal in early childhood: Sociometric status and social-cognitive differences across four years. *Child Development*, 278-294. doi: 10.2307/1131850.
- Kaufmann, W. (1968). *Basic writing of Nietzsche*. New York: Modern Library.
- Kirkcaldy, B. D., Shephard, R. J., & Siefen, R. G. (2002). The relationship between physical activity and self-image and problem behaviour among adolescents. *Social Psychiatry and Psychiatric Epidemiology*, 37(11), 544-550. doi: 10.1007/s00127-002-0554-7.
- La Greca, A. M., & Harrison, H. M. (2005). Adolescent peer relations, friendships, and romantic relationships: Do they predict social anxiety and depression? *Journal of Clinical Child and Adolescent Psychology*, 34(1), 49-61. doi: 10.1207/s15374424jccp3401_5.
- Ladd, G. W., Kochenderfer-Ladd, B., Eggum, N. D., Kochel, K. P., & McConnell, E. M. (2011). Characterizing and comparing the friendships of anxious-solitary and unsociable preadolescents. *Child Development*, 82(5), 1434-1453. doi: 10.1111/j.1467-8624.2011.01632.x.
- Larson, R. W. (1990). The solitary side of life: An examination of the time people spend alone from childhood to old age. *Developmental Review*, 10(2), 155-183. doi: 10.1016/0273-2297(90)90008-R.
- Larson, R., & Richards, M. H. (1991). Daily companionship in late childhood and early adolescence: Changing developmental contexts. *Child Development*, 62(2), 284-300.
- Larson, R., & Seepersad, S. (2003). Adolescents' leisure time in the United States: Partying, sports, and the American experiment. *New Directions for Child and Adolescent Development* (99), 53-64. doi: 10.1002/cd.66.

- Leary, M. R., Herbst, K. C., & McCrary, F. (2003). Finding pleasure in solitary activities: desire for aloneness or disinterest in social contact?. *Personality and Individual Differences*, 35(1), 59-68. doi: 10.1016/S0191-8869(02)00141-1.
- Long, C. R., & Averill, J. R. (2003). Solitude: An exploration of benefits of being alone. *Journal for the Theory of Social Behaviour*, 33(1), 21-44. doi: 10.1111/1468-5914.00204.
- Maslow, A. H. (1954). *Motivation and personality*. New York: Wesley Longman Inc.
- Miller, S. R. (2012). I don't want to get involved: Shyness, psychological control, and youth activities. *Journal of Social and Personal Relationships*, doi: 10.1177/0265407512448266.
- Nelson, L. J. (2013). Going it alone: Comparing subtypes of withdrawal on indices of adjustment and maladjustment in emerging adulthood. *Social Development*, 22(3), 522-538. doi: 10.1111/j.1467-9507.2012.00671.x.
- Oh, W., Rubin, K. H., Bowker, J. C., Booth-LaForce, C., Rose-Krasnor, L., & Laursen, B. (2008). Trajectories of social withdrawal from middle childhood to early adolescence. *Journal of Abnormal Child Psychology*, 36(4), 553-566. doi: 10.1007/s10802-007-9199-z.
- Parker, J., Rubin, K., Erath, X., Wojslawowicz, J., & Buskirk, A. (2006). Developmental psychopathology: Risk, disorder, and adaptation. *Developmental Psychopathology*, 1, 419-493.
- Rubin, K. H. (1982). Social and Social—Cognitive Developmental Characteristics of Young Isolate, Normal, and Sociable Children. In K.H. Rubin & H.S. Ross (Eds.), *Peer relationships and social skills in childhood* (pp. 353-374). New York: Springer. doi: 10.1007/978-1-4613-8180-8_16.

- Rubin, K. H., Coplan, R. J., & Bowker, J. C. (2009). Social withdrawal in childhood. *Annual Review of Psychology*, 60, 141. doi: 10.1146/annurev.psych.60.110707.163642.
- Rubin, K. H., Coplan, R. J., Bowker, J. C., & Menzer, M. (2004). Social withdrawal and shyness. In P. K. Smith & C. H. Hart (Eds.), *Blackwell Handbook of Childhood Social Development*. Oxford: Blackwell Publishing. doi: 10.1002/9781444390933.ch23.
- Rubin, K. H., Wojslawowicz, J. C., Rose-Krasnor, L., Booth-LaForce, C., & Burgess, K. B. (2006). The best friendships of shy/withdrawn children: Prevalence, stability, and relationship quality. *Journal of Abnormal Child Psychology*, 34(2), 139-153. doi: 10.1007/s10802-005-9017-4.
- Schmidt, L. A., & Fox, N. A. (1994). Patterns of cortical electrophysiology and autonomic activity in adults' shyness and sociability. *Biological Psychology*, 38(2), 183-198. doi: 10.1016/0301-0511(94)90038-8.
- Schmidt, L. A., & Fox, N. A. (1995). Individual differences in young adults' shyness and sociability: Personality and health correlates. *Personality and Individual Differences*, 19(4), 455-462. doi: 10.1016/0191-8869(95)00083-I.
- Simpkins, S. D., Vest, A. E., Dawes, N. P., & Neuman, K. I. (2010). Dynamic relations between parents' behaviors and children's motivational beliefs in sports and music. *Parenting: Science and Practice*, 10(2), 97-118. doi: 10.1080/15295190903212638.
- Smith, D. J. (2003). A framework for understanding the training process leading to elite performance. *Sports Medicine*, 33(15), 1103-1126. doi: 10.2165/00007256-200333150-00003.
- Storr, A. (2005). *Solitude: A return to the self*. New York: Simon and Schuster.

- Suedfeld, P. (1982). Aloneness as a healing experience. In L. A. Paplau & D. Perlman (Eds.), *Loneliness: A sourcebook of current theory, research and therapy* (pp. 54-67). New York: Wiley.
- Tang, A., Santesso, D. L., Segalowitz, S. J., & Schmidt, L. A. (2016). Distinguishing shyness and sociability in children: An event-related potential study. *Journal of Experimental Child Psychology*, 142, 291-311. doi: 10.1016/j.jecp.2015.08.008.
- Teppers, E., Luyckx, K., Vanhalst, J., Klimstra, T., & Goossens, L. (2014). Attitudes Towards Aloneness During Adolescence: A Person-Centred Approach. *Infant and Child Development*, 23(3), 239-248. doi: 10.1002/icd.1856.
- Vandell, D. L., Wilson, K. S., & Buchanan, N. R. (1980). Peer interaction in the first year of life: An examination of its structure, content, and sensitivity to toys. *Child Development*, 481-488. doi: 10.2307/1129282.
- Wang, J. M., Rubin, K. H., Laursen, B., Booth-LaForce, C., & Rose-Krasnor, L. (2013). Preference-for-solitude and adjustment difficulties in early and late adolescence. *Journal of Clinical Child & Adolescent Psychology*, 42(6), 834-842. doi: 10.1080/15374416.2013.794700.
- Winnicott, D. W. (1958). The capacity to be alone. *The International Journal of Psychoanalysis*, 39, 416.
- Wright, A., & Cote, J. (2003). A retrospective analysis of leadership development through sport. *Sport Psychologist*, 17(3), 268-291. doi: 10.1234/12345678.

Chapter 2 (Study 1): Affinity for aloneness and shyness: Longitudinal associations with social adjustment

Social withdrawal is an umbrella term describing solitary behaviors among peers (Rubin & Asendorpf, 1993) and includes subtypes such as shyness and affinity for aloneness (AFA). Social withdrawal subtypes may be distinguished by their underlying motivation and the emotional state that accompanies withdrawal (Asendorpf, 1990). For instance, *shy* children tend to feel fearful and anxious in social settings and they are preoccupied and over concerned with social evaluation, which frequently leads to inhibition of social behavior and withdrawal from the peer group (Henderson, Gilbert & Zimbardo, 2014). In contrast, children with an *affinity for aloneness* (AFA) have relatively low social interest in peers and low preoccupation with peer's evaluation and approval, and therefore do not tend to feel anxious in social situations (Asendorpf, 1990). Thus, shy children typically withdraw from the peer group due to social fears and discomfort, while children with an AFA typically withdraw voluntarily without experiencing distress (Asendorpf, 1990; Schmidt & Fox, 1995). These differing withdrawal motivations of shyness and AFA were hypothesized to underlie the different adjustment outcomes reported in association with these subtypes of social withdrawal.

In aggregate, shyness has been linked to negative socio-emotional adjustment outcomes, such as lower perceived social competence, poorer academic performance, loneliness, negative emotionality and internalizing problems (Coplan et al., 2013; Coplan & Weeks, 2009; Karevold, Ystrøm, Coplan, Sanson & Mathiesen, 2012). AFA, on the other hand, generally has been reported to have null associations with internalizing problems such as depressive symptoms, social anxiety and negative affect (Coplan et al., 2013, Coplan, Prakash, O'Neil, & Armer, 2004; Coplan & Weeks, 2010a). However, studies have also shown that children with an AFA may be

perceived by peers as socially deviant and as less desirable playmates (Coplan, Girardi, Findlay, & Frohlick, 2007). It was speculated that this social dynamic might put children with an AFA at a risk for peer victimization (Coplan & Weeks, 2010a), particularly in middle childhood and onward, a period in which social relationships become increasingly salient in children's lives and have a greater influence on their adjustment (Rubin, Coplan & Bowker, 2009). It is plausible, therefore, that even if children with an AFA are less prone to internalizing problems because they are content with lower rates of social interaction, they might suffer negative consequences as a result of peers' response to their social preference. However, there is no conclusive evidence regarding the adjustment impact of AFA, due to a lack of longitudinal studies that differentiated among subtypes of social withdrawal.

All of the existing long-term longitudinal studies have either focused on shyness alone (e.g., Findlay, Coplan & Bowker, 2009) or on social withdrawal in general (e.g., Booth-LaForce & Oxford, 2008). Studies on social withdrawal in children typically report negative adjustment outcome such as low self-esteem, internalizing problems, loneliness, depression and anxiety (Boivin, Hymel, & Bukowski, 1995; Gazelle & Ladd, 2003). It is not clear, however, whether both fearful and non-fearful types of social withdrawal are linked to negative adjustment outcomes. Shyness (fearful social withdrawal) has been more often reported in relation to negative adjustment compared to AFA (non-fearful social withdrawal). Therefore, the negative adjustment outcomes reported in studies that measured global social withdrawal might have been driven by shyness, and not AFA. Thus, it is very important to clearly differentiate between shyness and AFA to avoid over-generalization of results.

The current study was designed to answer these gaps in the literature and to provide needed insight into the differential associations of AFA and shyness with social adjustment in

middle childhood. To achieve this goal, AFA and shyness were measured across three time points (Grades 3-5) and their associations with three main indicators of social adjustment (social skills, peer victimization and close friendship quality) were assessed at each time point. Results were intended to extend the literature by clarifying previously inconclusive findings regarding the social development of children with an AFA. The findings also could have implications for parents and educators who take care of the well-being and adjustment of children with an AFA.

AFA and shyness: Associations with Social skills

Past research has reliably established that shy children tend to have poorer social skills than do non-shy peers (Asendorph & Meier, 1993; Bohlin, Hagekull & Andersson, 2005; Rimm-Kaufman & kagan, 2005). For instance, researchers have found that shy children are less likely to provide help and comfort to peers (Coplan et al., 2004; Eisenberg et al., 1996; Stanhope, 1987), are more nervous in public (Cartwright-Hatton, Hodges & Porter, 2003), speak less (Coplan & Evans, 2009) and display more reticent behavior (Coplan et al., 2004) than non-shy peers. Karevold, Ystrøm, Coplan, Sanson and Mathiesen (2012) showed that the association between shyness and poorer social skills persisted from infancy to adolescence, and that an increase in shyness during middle/late childhood predicted a decrease in social skills.

The poorer social skills of shy children may be explained, in part, by their greater preoccupation with their own performance and fear of negative evaluation in social situations, which increases self-consciousness and self-criticism (Henderson & Zimbardo, 2010). In fact, shy children were found to overestimate how nervous and incompetent they appear to others, suggesting their self-perceptions might be cognitively distorted (Cartwright- Hatton, Hodges & Porter, 2003; Cartwright- Hatton, Tschernitz & Gomersall, 2005; Edelman & Baker, 2002). Such

dysfunctional patterns of self-evaluation are cognitively taxing and might consume internal resources that otherwise could have been devoted to being more attuned and sensitive to the peer group (Bandura, 2011). This type of cyclical social dynamic may lead to greater social withdrawal in shy children (Coplan & Weeks, 2010a), exacerbate avoidance and increase frustration with their inability to interact with peers in the way they wish to do.

Children with an AFA, on the other hand, spend greater time alone due to low social interest and not due to social fears. Therefore, they are not expected to experience internal barriers to adaptive social communication and are theorized to be comparable to non-withdrawn peers in their overall social skills and capability to create friendships (Asendorpf, 1990). In support of that notion, Asendorpf and Meier (1993) reported that children with an AFA in the second grade were comparable to non-withdrawn peers in verbal communication skills. These authors also reported that children with an AFA had lower exposure to social interactions with friends and siblings. However, because the study by Asendorpf and Meier (1993) was cross sectional, it is unclear whether lower exposure to social interactions would have a lasting impact on the social skills of children with an AFA. Since adequate social exposure was linked with adaptive development of social skills across childhood (Spence, Donovan, & Brechman-Toussaint, 2000) and poor social skills pose a risk to peer victimization and lower acceptance (Rubin, Wojslawowicz, Rose-Krasnor, Booth-LaForce & Burgess 2006), it is important to understand the long-term impact of AFA on social skills. However, there is a lack of longitudinal studies on this topic.

To address this gap in the literature, in the current study I measured the bi-directional paths from AFA to social skills, when taking into account the impact of shyness, friendship-quality and peer victimization. Based on the strong theoretical basis that AFA would be

unrelated to lower social skills in childhood (Asendorpf, 1990; Cheek & Buss, 1981; Rubin, 1982) and on the available research that has confirmed this assertion concurrently (Asendorpf & Meier, 1993), I hypothesized that AFA, as opposed to shyness, will not be negatively associated with social skills longitudinally.

Another important aspect of social functioning that should be considered when measuring social adjustment of children with an AFA and shyness is peer victimization as some researchers have reported a positive association between these constructs (e.g., Liu, et al., 2014).

AFA and shyness: Associations with Peer Victimization

AFA has been most often investigated in the context of peer rejection and exclusion, rather than peer victimization. For instance, Ladd, Kochenderfer-Ladd, Eggum, Kochel, and McConnell (2011) found that children with an AFA were more excluded by peers than were non-withdrawn peers. In another study that presented children with hypothetical vignettes describing shy, AFA (unsociable in the original article), aggressive and non-withdrawn children, researchers found that children with an AFA were perceived as less desirable playmates than were shy children, but more desirable than aggressive children (Coplan et al., 2007).

Less is known about the developmental impact of AFA on peer victimization over time. Peer victimization is defined as being on the “receiving end” of physical and/or verbal peer aggression (Shell, Gazelle & Faldowski, 2014). In contrast to peer exclusion and rejection, in victimization children might be directly exposed to actual physical harm. Moreover, peer victimization has been associated with internalizing problems (Hodges & Perry, 1999; Olweus, 1993), aggressive behavior, low popularity and delinquency (Hanish & Guerra, 2002). These

alarming possibilities highlight the importance of expanding the knowledge on the long-term associations between AFA and peer victimization.

Only a handful of researchers have directly investigated AFA in relation to peer victimization and the accumulated evidence regarding the direction of associations is inconclusive. Several studies did not reveal a positive association between AFA and peer victimization. For instance, Coplan et al., (2013) reported that AFA, as opposed to shyness, did not have a significant direct effect on peer problems in middle childhood (Canadian sample, $Mage=10.16$). Bowker and Raja (2011) conducted a cross-sectional study based on self-reported social preference and peer nominations of victimized children among Indian adolescents ($Mage=13.35$). These authors did not find a unique association between AFA and peer victimization. In concert with these findings, Ladd et al., (2011) found in a short-term longitudinal study of preadolescents ($Mage=10.25$) that AFA and comparison children did not differ on levels of peer victimization.

Other researchers have found that a positive association between AFA and peer victimization existed mainly for boys. For instance, Coplan and Weeks (2010b) conducted a short-term longitudinal study with multiple informants (maternal, teacher and child reports) in which shy, AFA (unsociable in the original article) and non-withdrawn children ($Mage=7.59$) were compared on measures of socio-emotional adjustment. AFA and non-withdrawn children were comparable on measures of loneliness, internalizing problems and school liking. Only girls with an AFA were comparable to the non-withdrawn group in frequency of peer difficulties, while boys with an AFA had more peer difficulties than did the non-withdrawn group and were comparable to shy children. Additionally, Liu et al., (2014) used peer nomination measures of shyness, AFA and peer victimization in a short-term longitudinal study (8 months) among

Chinese children (ages 10-14 yrs.). Results indicated that AFA predicted peer victimization only for boys and that peer victimization predicted AFA only for girls. Bowker, Markovic, Cogswell and Raja (2012) investigated the association between AFA and peer victimization among adolescents ($Mage = 13.35$) and reported that AFA was related to victimization at low and medium levels of relational aggression (but not high levels). Among non-aggressive adolescents with an AFA, there was no association with peer victimization.

Ding, Weeks, Liu, Sang and Zhou (2014), however, found a significant direct positive association between AFA and peer victimization for both boy and girls, while controlling for shyness. This was a cross-sectional study based on peer nominations in an urban Chinese sample ($Mage = 12.55$ yrs.). However, Ding et al., (2014) did not measure AFA and peer problems in the same model with shyness, such that the shared variance of AFA with shyness was not accounted for, which may have skewed the results. Additionally, the results of Ding et al., (2014) and Liu et al., (2014) may be explained in part by the emphasis that exists in China on communal values such as belongings and commitment to the group (Chen & French, 2008). In this social context AFA may be considered by peers as a particularly deviant and negative trait and thus make children who show an AFA more prone to victimization. Therefore, the results may not be generalizable to Western cultures, in which children are socialized to value individualism rather than collectivism (Raeff, 1997).

To conclude, there is a mixed body of evidence regarding the direction of associations between AFA and peer victimization. A positive association between AFA and peer-victimization emerged mainly for boys, in collectivist cultures and when individual differences in aggression were taken into account. However, the majority of the above-cited studies were cross-sectional or short-term longitudinal and focused on early adolescents. Moreover, only one

short-term longitudinal study (Liu et al., 2014) has investigated the bi-directional effects between these two variables. Thus, the long-term effects of AFA on peer victimization throughout middle childhood are yet unclear.

The current study is intended to address this gap in the literature by measuring the bi-directional paths between AFA and peer-victimization across three time points in middle childhood (Grades 3 to 5), while simultaneously measuring shyness, friendship quality and social skills. Because the majority of the available research points to null or indirect associations between AFA and peer victimization in Western samples (e.g., Ladd et al., 2011), I hypothesized that only shyness, but not AFA, would be negatively associated with peer victimization.

AFA and shyness: Associations with Friendship Quality

Most of the research on the associations between friendship quality and social withdrawal in childhood have examined social withdrawal as a general construct or have focused solely on shyness (e.g., Coplan & Armer, 2005; Rubin, Wojslawowicz, Rose-Krasnor, Booth-LaForce, & Burgess, 2006). In these studies, the prevalence of close friendships among shy/socially withdrawn children has been found to be similar to that of non-withdrawn children (65%), and socially withdrawn children were as likely as non-withdrawn children to sustain a close friendship over the course of one year (70%; Rubin et al., 2006). However, Rubin et al., (2006) also reported that socially withdrawn young adolescents rated their friendship quality as lower than did non-withdrawn adolescents. Moreover, Schneider (1999) reported that while socially withdrawn 8 and 9-year-old children perceived their close relationships as being of high quality, their friends did not share the same perspective.

Interestingly, socially withdrawn children tended to befriend other withdrawn children (Rubin et al., 2006). Because socially withdrawn children were found to be less expressive and forthcoming verbally (Schneider, 1999), friendships with similar peers may perpetuate dysfunctional communication patterns. In support of this hypothesis, a study on anxious-withdrawn preadolescents found that they held self-centered perceptions of friendship and tended to focus on their own needs (Schneider & Tessier, 2007).

However, when good friendship quality does exist, it seems to be a protective factor for socially withdrawn children. For instance, Bukowski, Laursen & Hoza, (2010) conducted a three-wave longitudinal study (Grades 3-5) and reported that the association between social withdrawal and depression was attenuated by having a close friendship. While this study revealed the positive effect of friendships on developmental trajectories of socially withdrawn children in general, it did not distinguish among subtypes of social withdrawal. Thus, it is unclear whether these findings extend to specific subtypes of social withdrawal, such as AFA.

It is important to understand the long-term impact of AFA on friendship quality because friendship quality has been found to be positively related to socio-emotional adjustment (Parker & Asher, 1993). Moreover, friendship quality was found as protective among children with low peer-acceptance (Waldrip, Malcolm & Jensen-Campbell, 2008), a social positioning that might be more common among children with an AFA (Ding et al., 2014).

The only study that directly assessed the friendships of children with an AFA (Ladd et al., 2011) reported that preadolescents with an AFA were as likely to form and sustain friendships as were non-withdrawn comparison peers (*Age*=10.25 yrs.). Moreover, the AFA group was at a lower risk for peer victimization if they had a mutual friendship. While the study by Ladd et al., (2011) provided important information regarding the friendships of children with

an AFA, it focused on the prevalence and stability of the friendships and not their quality. Thus, the long-term associations between AFA and friendship quality remain unclear.

The aim of the current study is to address this gap in the literature by measuring the bi-directional associations between AFA and friendship quality across three time points in middle childhood (Grades 3 to 5), while simultaneously measuring shyness, peer victimization and social skills. Based on the findings of Ladd et al., (2011) that suggest that children with an AFA have normative friendships and those of Rubin et al., (2006) that suggest lower friendship quality among shy children, I hypothesized that only shyness, but not AFA, would have a negative association with close friendship quality.

The current study

The overarching goal of the current study was to investigate the bi-directional associations between AFA, shyness, social skills, peer victimization and close friendship quality, across three time points in middle childhood (Grades 3 to 5). This study model is designed to address several important gaps in the literature.

First, the associations between AFA and social adjustment are markedly under-researched in comparison to shyness and general social withdrawal, particularly longitudinally. This lack of research exists despite the fact that the theoretical definitions of a non-fearful preference for solitude in childhood were conceptualized more than two decades ago (Asendorpf, 1990).

Second, very little is known about the links between AFA and social skills, friendship quality and peer victimization. These important facets of social functioning were not previously studied together longitudinally. Therefore, their simultaneous measurement would help advance

the understanding of the long-term associations of AFA with an array of social adjustment markers in childhood.

The main study hypothesis is that shyness, but not AFA, would have negative associations with social skills and friendship quality and a positive association with peer victimization, from Grade 3 to 5.

Additionally, this study is intended to lay the foundation for future longitudinal investigations of AFA to help accurately inform interventions and practices of parents, teachers and other professionals working with children.

Method

Participants

To test the study hypotheses, I used data from the National Institute of Child Health and Human Development (NICHD) study of Early Child Care and Youth Development (SECCYD). The SECCYD study commenced in 1991 with the recruitment of families from hospitals located in 10 nationally representative cities in the United States. During a pre-determined period of 24 hours, 8968 women who gave birth were screened based on strict selection criteria. Families were excluded if the mother was younger than 18 years old, was non-English speaking, declared substance abuse, had multiple births, lived in an extremely unsafe neighborhood, planned to relocate or lived further than a one-hour commute from a laboratory site. A total of 1364 families matched the inclusion criteria and entered the study after completing a home interview when the child was one month old. Families participated in four phases of data collection: 1-54 months old (Phase one), 54 months through Grade 1 (Phase two), Grades 1-6 (Phase three) and Grades 7-9 (Phase four). Additional details regarding recruitment and selection criteria can be found on the study website (<https://www.nichd.nih.gov/research/supported/Pages/seccyd.aspx>).

Analysis Sample

The current study is based on $N = 1097$ families that participated in the third phase of data collection (Grades 1-6). Specifically, the analysis focused on Grades 3-5 due to theoretical interest in this age group and availability of relevant measures. A total of 267 families (19.5%) of the original sample (starting phase one, $N = 1364$) were not included in the current analysis due to attrition (prior to Phase 3).

At the first time point of the current study (Grade 3), children in the analysis sample (49% girls) were on average 8.42 years of age ($SD = .5$). The sample comprised 82% European American, 12% African American, and 6% other ethnicities (Hispanic, Asian and Indian American). Mothers were 28.11 ($SD = 5.6$) years old on average at time of birth and had a mean 14.2 ($SD = 2.5$) years of education. The family income-to-needs ratio at time of birth was 2.8 ($SD = 2.6$) and 85% of children were living with both parents. A ratio of 1.00 or greater indicates income above the poverty level (U.S. Census Bureau, 2004).

Mothers of children who were included in the current sample versus those who were not due to attrition were older (28.5 vs. 26.6 yrs.), $t(1360) = 4.9, p < 0.001$; had more years of education (14.5 vs. 13.4), $t(1361) = 6.1, p < 0.001$; had families with a higher income-to-needs ratio (3 vs. 2.28), $t(1271) = 4.1, p < 0.001$; and were more likely to be living with the children's fathers (87% vs. 78%), $t(1362) = 3.5, p < 0.001$.

Children who were included in the sample were not significantly different on ethnicity ($\chi^2_{(4)} = 8.1, ns$) or gender $t(1362) = 1.9, ns$, than were children who did not participate in phase 3 of the study.

Procedure

Children were assessed in Grades 3-5 on measures of shyness, AFA and social adjustment. The specific measures used in the analysis and the control variables are described in the following sections. Additional information regarding data collection protocols, demographic variables, psychometric properties of instruments and description of composite variables can be found in the study's Manuals of Operation and Instrument Documentation (www.icpsr.umich.edu/icpsrweb/ICPSR/studies/21940/documentation).

Measures

Shyness. Shyness was assessed by a subset of items adapted from the Child Behavior Checklist (CBCL; Achenbach, 1991) social withdrawal scale. The CBCL is a 113-item widely used and well validated standardized measure of children's socio-emotional adjustment from 4-18 years old. Maternal reports were used in the current analyses to assess shyness based on previous studies that established mothers as reliable informants of shyness in young children (Coplan, Prakash, O'Neil & Armer, 2004). Four items of the CBCL social withdrawal scale that pertain directly to shyness were included in the current scale (shy, secretive, refuses to talk and withdrawn). Items assessing depressive tendencies (sad, lacks energy, enjoys life) and the item 'prefers to be alone' were omitted. The depression items were averaged at each time point and used as a covariate. I controlled for depression based on previous literature that reported positive correlations between depression and shyness (Rubin, Coplan, & Bowker, 2009).

Mothers rated each item on a 3-point scale (0 = not true, 1 = somewhat true, 2 = very true). Shyness items were averaged at each time point (Grades 3-5) to form a scale termed 'Shyness', which demonstrated moderate-to-good reliability ($\alpha = .68$ to $.72$). The correlations

between the Shyness scale and the CBCL social withdrawal scale ranged from $r = .86$ to $r = .83$ across Grades 3 to 5.

Affinity for Aloneness (AFA). The AFA measure was adapted from the Asocial with Peers subscale of the Child Behavior Scale (Ladd & Profilet, 1996). The Child Behavior Scale is a 43-item questionnaire designed to measure children's relationships with peers. The Asocial with Peers subscale has demonstrated validity in studies that reported a positive correlation with observational indexes of non-social and withdrawn behaviors (Ladd & Profilet, 1996). Only items measuring underlying motivation to be alone were included in the current analysis (prefers to play alone, likes to be alone, solitary child, keeps peers at a distance), while items measuring global social withdrawal were excluded (avoids peers, withdraws from peer activities). Mothers rated each item on a 3-point scale (0= not true, 1= sometimes true, 2 =often true). Items were averaged at each time point (Grades 3-5) to form a scale termed "Affinity for aloneness" (AFA) that demonstrated good reliability ($\alpha = .75, .72$ and $.70$ respectively). The correlations of the AFA scale with the original Asocial with Peers scale ranged from .86 to .93.

Social Skills. The Social Skills Rating System (SSRS; Gresham & Elliot, 1990) was used to assess children's social skills and competence. The SSRS measures parental perception of a wide range of child's social skills such as assertion, cooperation and self-control. A sub-scale measuring peer competence was created for the NICHD SECCYD. Parental ratings were provided on a 3-point scale (0= Never, 1= sometimes, 2= very often). The sub-scale reliabilities ranged between $\alpha = .84$ and $\alpha = .95$. Sample items are "Makes friends easily" and "Gives compliments to friend/other children". The SSRS was validated on a US nationally representative sample of boys and girls aged 3-18 years and is a standardized measure ($Mean = 100, SD = 15$). The SSRS social skills subscales were negatively correlated with the Social

Problems CBCL Scale (Achenbach, 1991) and positively correlated with children's adjustment, as assessed by the Harter Teacher Rating Scale (TRS; Harter, 1985). A standardized composite score calculated by the NICHD SECCYD was used in the current study at each time point.

Peer victimization. Peer victimization was measured by the Peer Victimization Scale (Ladd, Kochenderfer & Coleman, 1996), a self-report scale for school-aged children that was modified by the NICHD SECCYD for administration to adults. Sample items are as follows: "Is teased or made fun of by peers" and "Is pushed around by other children". Items were rated by mothers on a 3-point scale (0 = not true, 1 = sometimes true, 2 = often true). The reliability of the scale ranged between $\alpha = .74$ and $\alpha = .90$ in Grades 3-5. External validity was established in studies that reported a positive association between the Peer Victimization Scale and observed levels of peer aggression and a negative association with peer acceptance (Ladd et al., 1996). Composite scales created by the NICHD SECCYD were used at each time point in the current study.

Friendship quality. Friendship quality was assessed by the Friendship Quality Questionnaire (Parker & Asher, 1993), a 21-item child-report questionnaire designed to measure children's perception of their closest friendships. The scale comprises six subscales: validation and caring, conflict resolution, conflict and betrayal, help and guidance, companionship and recreation and intimate exchange. Responses ranged from 1 = *not at all true* to 5 = *really true*. Items assessing the length of the friendship and amount of contact were added by the NICHD SECCYD. Sample items are "My friend and I tell each other about our problems" and "My friend cares about my feelings". Internal reliability of the scale was $\alpha = .87$, $.90$ and $.93$ in Grades 3-5 respectively. Composite scales created by the NICHD SECCYD were used at each time point.

Plan of Analysis

In order to assess the longitudinal associations between shyness and AFA with social adjustment, I specified a 3-wave (Grades 3-5) autoregressive cross-lagged model in Mplus 7 (Muthen & Muthen, 2012), in which bi-directional paths were estimated between shyness and AFA and social adjustment outcomes across all time points. Additionally, I estimated stability paths across time points within each variable and accounted for within-wave correlations among all variables. Gender, income and depression were included as covariates.

Results

Preliminary Analysis

Descriptive data for the study variables across time points are reported in Table 2-1, as are zero-order correlations among the variables. There was relative stability in scores across grades for each variable, with the greatest stability shown for social skills ($r_s = .79-.77$) and lowest for friendship quality ($r_s = .50-.38$).

Missing data occurred within each time point because parents or children did not complete all study measures (7.1%, 7.4% and 7.6% in Grades 3, 4 and 5 respectively). Because these missing data did not depend on the study variables, it is reasonable to assume that data were missing at random (Little & Rubin 2002; Schafer & Graham, 2002). In the auto-regressive cross-lagged model, the missing values were estimated in Mplus 7 (Muthen & Muthen, 2012) using full information maximization likelihood (FIML). FIML retains cases that have missing data, thus avoiding the biased parameter estimates that could occur with pair-wise or list-wise deletion (Schafer & Graham, 2002).

Primary Analysis

To test the hypothesis that shyness, but not AFA, would be negatively associated with social adjustment, a three-wave (Grades 3-5) autoregressive cross-lagged model of shyness and AFA as predictors of friendship quality, social skills and peer victimization was first assessed on invariance of results across time. Gender, income and depression were entered into the model as covariates. Invariance was tested by comparing a model in which all cross-lagged paths were constrained across the three time points to an unconstrained model in which all structural paths were free to vary. The Chi square difference test of relative fit indicated that the unconstrained model did not have a significantly better fit to the data than did the constrained model ($\chi^2_{(20)} = 21.9, p = .30$). This suggested that the pattern of associations across the three time points was consistent. As the constrained model was the most parsimonious model, all further interpretations were based on the constrained model. The model had excellent fit to the data: $\chi^2_{(70)} = 205.3, p = .000$, CFI = .98, RMSEA = .04; CI: $.035 \leq \text{RMSEA} \leq .05$. Table 2-2 summarizes beta weights for all cross-lagged and stability paths. The constrained model was tested for gender invariance and no significant differences were found between genders.

Shyness and AFA had bi-directional significant positive associations across Grades 3-5. Confirming the main hypothesis, shyness, but not AFA, was associated with greater peer victimization and lower social skills across Grades 3-5. Neither shyness nor AFA had a negative association with friendship quality in the tested time points (see Figure 2-1). Social skills had a significant negative association with shyness across Grades 3-5, and peer victimization had a significant positive association with AFA across Grades 3-5.

Table 2-1. *Correlations among all study variable across three time points (Grades 3 -5).*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 Shyness 3	1																	
2 Shyness 4	.53	1																
3 Shyness 5	.6	.49	1															
4 AFA 3	.42	.32	.38	1														
5 AFA 4	.42	.36	.4	.61	1													
6 AFA 5	.42	.39	.36	.59	.66	1												
7 F. quality 3	-.06	-.02	.01	-.11	-.06	-.07	1											
8 F. quality 4	-.07	-.08	-.05	-.13	-.13	-.12	.47	1										
9 F. quality 5	-.08	-.11	-.08	-.12	-.12	-.17	.39	.51	1									
10 Social Skills 3	-.26	-.19	-.26	-.26	-.25	-.24	.01	.08	.16	1								
11 Social Skills 4	-.24	-.19	-.23	-.25	-.31	-.27	.04	.12	.19	.8	1							
12 Social Skills 5	-.28	-.21	-.27	-.22	-.24	-.28	.03	.12	.18	.74	.77	1						
13 Victimization 3	.17	.15	.15	.31	.25	.25	-.05	-.09	-.09	-.31	-.29	-.29	1					
14 Victimization 4	.21	.19	.19	.24	.35	.36	-.03	-.09	-.1	-.29	-.31	-.3	.6	1				
15 Victimization 5	.24	.25	.25	.24	.27	.39	-.06	-.12	-.18	-.26	-.29	-.33	.56	.64	1			
16 Income	.31	-.09	-.11	-.09	-.1	-.13	-.1	.05	.05	-.19	.28	.27	-.22	-.19	-.2	1		
17 Gender	.02	-.02	.02	-.05	-.06	-.07	.17	.18	.29	.13	.13	.12	-.1	-.05	-.06	-.004	1	
18 Depression	.35	.32	.38	.31	.31	.3	-.02	-.02	-.08	-.28	-.24	-.24	.37	.37	.35	-.14	.04	1
M	.19	.2	.18	.27	.21	.27	3.9	4	4.1	57.2	57.7	57.2	.23	.2	.22	4.7	1.5	2.7
SD	.25	.26	.24	.34	.3	.33	.64	.65	.59	9.8	10.2	9.2	.34	.33	.35	.35	.5	3.1

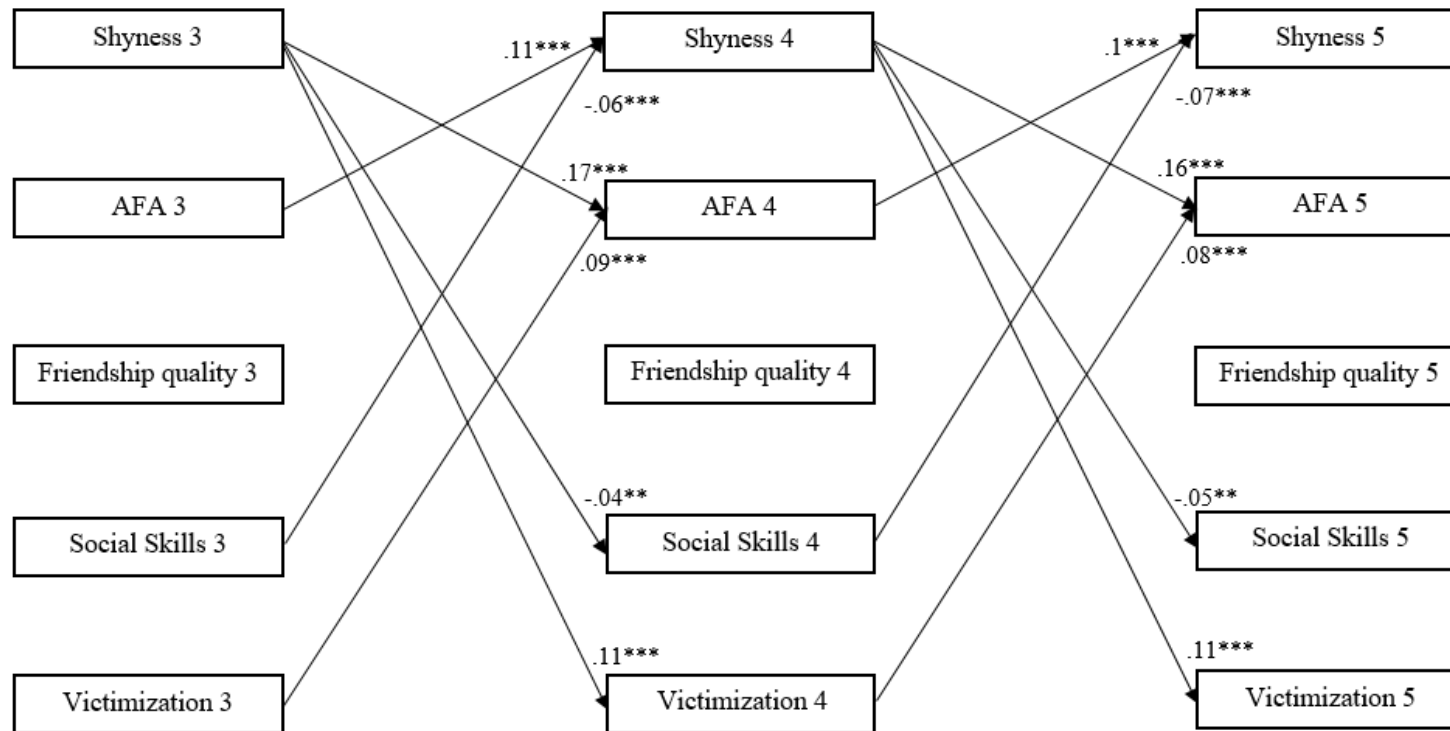
Note. Numbers 3, 4 and 5 indicate Time 1 (Grade 3), Time 2 (Grade 4), Time 3 (Grade 5), respectively. AFA = affinity for aloneness. Higher scores indicate greater shyness and AFA, better friendship quality and social skills, and more victimizations.

Table 2-2. *Beta weights (unstandardized and Standardized) and standard errors for all cross-lagged and stability paths.*

Path	B	β	SE	P
Shyness 3 → AFA 4	0.201	0.165	0.018	0.000
Shyness 3 → Friendship quality 4	-0.054	-0.021	0.019	0.288
Shyness 3 → Social skills 4	-1.660	-0.041	0.014	0.003
Shyness 3 → Peer-victimization 4	0.141	0.105	0.019	0.000
Shyness 3 → Shyness 4	0.484	0.465	0.025	0.000
AFA 3 → Shyness 4	0.082	0.106	0.021	0.000
AFA 3 → Friendship quality 4	-0.057	-0.029	0.022	0.184
AFA 3 → Social skills 4	0.101	0.003	0.015	0.826
AFA 3 → Peer-victimization 4	-0.010	-0.010	0.021	0.641
AFA 3 → AFA 4	0.451	0.501	0.022	0.000
Friendship quality 3 → Shyness 4	0.009	0.022	0.017	0.192
Friendship quality 3 → AFA 4	0.000	-0.001	0.019	0.971
Friendship quality 3 → Social skills 4	0.348	0.022	0.013	0.084
Friendship quality 3 → Peer-victimization 4	-0.011	-0.020	0.017	0.245
Friendship quality 3 → Friendship quality 4	0.466	0.457	0.025	0.000
Social skills 3 → Shyness 4	-0.002	-0.058	0.018	0.001
Social skills 3 → AFA 4	-0.001	-0.038	0.018	0.063
Social skills 3 → Friendship quality 4	0.005	0.082	0.020	0.000
Social skills 3 → Peer-victimization 4	-0.002	-0.069	0.018	0.000
Social skills 3 → Social skills 4	0.807	0.779	0.013	0.000
Peer-victimization 3 → Shyness 4	0.025	0.032	0.019	0.086
Peer-victimization 3 → AFA 4	0.082	0.091	0.019	0.000
Peer-victimization 3 → Friendship quality 4	-0.039	-0.021	0.020	0.305
Peer-victimization 3 → Social skills 4	-1.078	-0.036	0.014	0.010
Peer-victimization 3 → Peer-victimization 4	0.568	0.577	0.021	0.000

Note. *B* = unstandardized beta weights, β = standardized beta weights, SE = standard error. Numbers 3 and 4 indicated time 1 (grade 3) and time 2 (grade 4), respectively. AFA = affinity for aloneness. Higher scores indicate: more shyness, more AFA, better friendship quality, more social skill and more victimization. Note that because the paths were invariant across time, the pattern of results is the same from time 2 to time 3 (not shown).

Figure 2-1. Significant cross-lagged paths between key study variables.



Note. ** $p < .01$, *** $p < .001$. Values indicate standardized beta weights (unstandardized beta weights, standard errors and stability paths are presented in Table 2-2). AFA = affinity for aloneness. Higher scores indicate: more shyness, more AFA, better friendship quality, more social skill and more victimization. Numbers 3, 4 and 5 indicate Time 1 (Grade 3), Time 2 (Grade 4) and Time 3 (Grade 5) respectively. Not shown are Time 1 covariates (gender, income and depression), results for which may be requested from the first author.

Discussion

The goal of this study was to examine longitudinally the differential associations of AFA and shyness with social adjustment from Grades 3 to 5. In line with main hypothesis, results indicated that shyness, but not AFA, was associated with lower social skills and more peer victimization across all time points. Further, AFA was not related to lower friendship quality across all time points, confirming the secondary study hypothesis. Contrary to hypothesis, shyness was also not related to friendship quality across all time points.

Differential associations of AFA and shyness with social adjustment

Results of auto-regressive, cross-lagged, longitudinal model point to significant negative paths from shyness to social skills and significant positive paths from shyness to peer-victimization, from Grade 3 through 5. As hypothesized, the paths from AFA to social skills, peer victimization and friendship quality were not significant. These results extend the existing literature in several meaningful ways.

Social skills

This study provides some of the first longitudinal evidence that AFA in middle childhood is not associated with lower social skills. Despite extensive conceptual work regarding the normal social capacities of children with an AFA (Asendorph, 1990; Cheek & Buss, 1981), surprisingly little empirical evidence exists to support or deny this notion. Some evidence was provided by Asendorph and Meier (1993), who studied second graders, and reported that children high on AFA and low on shyness were comparable to non-withdrawn peers on measures of verbal communication. The current results suggest that this trend continues at least until Grade 5 and extends the range of social skills studied. The social skills measure used in the current study (SSRS; Gresham & Elliot, 1990) assesses skills such as assertion, cooperation, self-control

and peer competence. The current data show that children with an AFA do not appear to be compromised in terms of social skills (in contrast to shy children), most likely because their social withdrawal stems from preference for solitude and not from social fears (as is the case in shyness).

The current results also extend previous research linking shyness with lower social skills. While multiple studies pointed to shyness as a concurrent predictor or antecedent of low social skills (Cartwright-Hatton, et al., 2003; Coplan et al., 2004; Coplan & Evans, 2009; Eisenberg et al., 1996; Stanhope et al., 1987), less evidence has accumulated regarding low social skills as a precursor of shyness (Rubin et al., 2009). The findings reported here suggest that shyness and low social skills are associated with each other year over year from Grade 3 to 5, which could be evidence of a negative reinforcement cycle between the two variables. These findings may have implications for interventions among shy children. Many interventions designed to treat shyness relay on cognitive reconstruction and/or exposure protocols (e.g., Rapee, Kennedy, Ingram, Edwards & Sweeney, 2005). While such interventions often have positive results (e.g., Lowry-Webster, Barrett & Dadds, 2001), they offer tools to minimize and handle existing symptoms. Perhaps interventions that would target behavioral factors that may contribute to the appearance of symptoms, such as social skills, could provide added benefit to shy children. Coplan, Schneider, Matheson and Graham (2010) conducted an intervention focused on social skills training among pre-school children and reported that children in the intervention group demonstrated a significantly greater post-intervention decrease in observed social wary behaviors and a significantly greater increase in socially competent behaviors at pre-school. The results of the current study suggest that interventions involving social skills training could be useful also in elementary school.

Friendship quality

As expected, AFA had no association with quality of close friendships across Grades 3-5. Interestingly, shyness also had no association with friendship quality. The results regarding AFA are in line with Ladd et al., (2011) and extend it in important ways. While Ladd et al., (2011) investigated quantitative aspects of friendships such as prevalence and stability, the focus of the current investigation was on qualitative aspects of friendships, such as validation and caring, conflict resolution, help and guidance, companionship and intimate exchange. It appears that AFA had no negative impact on these qualitative aspects of close friendships across Grades 3-5. AFA may not have a negative association with friendship quality because children with an AFA are not preoccupied by self-evaluative concerns in social situations and dysfunctional cognitive schemes such as expectation of failure (Crozier, 2010). Therefore, they have available mental resources (Bandura, 2011) to invest in cultivating the qualitative aspects of the friendship.

With respect to shyness, a null effect on friendship quality was previously reported in Fordham and Hinde (1999) and Schneider (1999). In comparison, a more recent study (Rubin et al., 2006) investigated best friendships and found that shy children rated their friendship as being of lower quality than those of control children. Notably, Schneider (1999) and Rubin et al., (2006) both used the same peer nomination measure to assess social withdrawal. Interestingly, Fordham and Hinde (1999) and Schneider (1999) controlled for social anxiety, while Rubin et al., (2006) did not. Thus, it is possible that the negative association found in Rubin et al., (2006) between friendship quality and shyness/social withdrawal was driven, at least in part, by social anxiety.

The main difference between shyness and social anxiety is the context of symptom occurrence. In social anxiety, typical symptoms like excessive self-evaluative concerns and

somatic expression of increased heart rate and blushing appear in both familiar and unfamiliar social situations (La-Grecka & Lopez, 1998; Turner, Beidel & Townsley, 1990), while in shyness symptoms appear mainly in novel social situations. Thus, if social anxiety in familiar situations was not accounted for by Rubin et al., (2006), it may have skewed the ratings of close friendship quality in shy children to be more negative than they really are, therefore producing the observed negative association between shyness and close friendship quality.

In the current study, the shy/withdrawn measure (CBCL; Achenbach, 1991) included only items specifically assessing shyness and internalizing problems were controlled. This approach aligns more closely with Fordham and Hinde (1999) and Schneider (1999) and may explain the similarity in results. However, in the current study, I did not take into account the perspective of the shy/AFA child's friend, which is important contextual information. As Schneider (1999) has reported, the friends of socially withdrawn children rated their friendships as being of lower quality than did the socially withdrawn children themselves. Therefore, while the current results imply that children with an AFA do not report lowered friendship quality, they do not inform if this regard is reciprocal.

To conclude, the current results provide novel evidence that AFA is not negatively related to close friendship quality from Grade 3 to 5. This finding is in line with theoretical conceptualization of AFA and previous research (Asendorpf, 1990; Coplan et al., 2004). Additionally, I found that shyness was unrelated to friendship quality, which is consistent with several previous studies (Fordham & Hinde, 1999; Schneider, 1990) and theoretical understanding of shyness as symptomatic only in unfamiliar social situations (unlike close friendships). However, my results are inconsistent with Rubin et al., (2006), who reported lower friendship quality among children with shyness.

To help reconcile these inconsistencies in the literature future research should differentiate between AFA and shyness, while controlling for social anxiety and obtaining both the child's and friend's rating of friendship quality.

Peer victimization

Shyness, but not AFA, was positively associated with peer victimization from Grade 3 through 5, confirming the main hypothesis. These results are in line with the majority of the studies that have differentiated between shyness and AFA in the context of peer victimization (Bowker & Raja, 2011; Coplan et al., 2013; Ladd et al., 2011). Several researchers have reported greater victimization among boys with an AFA, mainly in Chinese samples (Ding et al., 2015; Liu et al., 2014). The current study was conducted on a United States sample, thus cultural differences in the perception of social withdrawal may account in part for differences in results. Additionally, rarely did studies measure both AFA and shyness in the same model, particularly longitudinally, which renders the current analysis as more robust than previous ones.

Of note, while the paths from AFA to peer victimization were not significant from Grade 3 to 5, the paths from peer victimization to AFA were positive and significant at each time point. This result may be explained in part by the measure used in this study to assess AFA. The Asocial with Peers subscale of the Child Behavior Scale (Ladd & Profilet, 1996) includes items such as "Prefers to play alone" and "Likes to be alone". These items do not rule out the possibility that children prefer to be alone because they want to get away from victimizing peers. Thus, perhaps the positive path effects from peer victimization to AFA are an artifact of the measurement method that cannot rule out externally imposed aloneness. Additionally, it is possible that victimized children rationalize their choice to be alone as volitional in order to downplay being victimized. While further research is needed to understand the source of the

significant paths from peer victimization to AFA, the absence of significant paths from AFA to peer victimization is an important and novel finding pointing to AFA as a distinct subtype of social withdrawal with unique ties to social adjustment.

Bi-directional associations between shyness and AFA

The bi-directional paths from shyness to AFA emerged as positive and significant from Grade 3 through Grade 5. This finding is in line with previous studies that reported a medium size correlation between the two variables (e.g., Coplan et al., 2004). This correlation has been explained by an overlap in the behavioral manifestation of social withdrawal (i.e., being removed from peers) but there is no theoretical basis to assume that the relationship between shyness and AFA is predictive in nature. Alternatively, this correlation might reflect a limitation of the variable-centered approach to data analysis taken in the current study, as well as in the vast majority of previous scholarly work on the topic. Variable-centered approaches to data analysis are suited to measure linear relationships between variables and are limited in their ability to measure multi-dimensional constructs (DiStefano & Kamphaus, 2006). Therefore, it is possible that the bi-directional positive and significant paths I observed between shyness and AFA are driven by individuals who are high on both measures, and do not capture other combinations such as high AFA and low shyness. Because there is theoretical and empirical basis to assume that high or low levels of shyness can co-occur with high or low levels of AFA (Cheek & Buss, 1981; Schmidt & Fox, 1994; 1995), variable-centered methods might not be optimal to study these constructs. For instance, Schmidt and Fox (1994) showed that individuals high on shyness and sociability (akin to shyness) had higher heart rate in anticipation of social interaction than three other groups: individuals high on shyness and low on sociability, low on shyness and high on sociability and low on both (akin to AFA). Moreover, in an ERP study shyness and sociability

were found as distinct on neurocognitive measures (Tang, Santesso, Segalowitz & Schmidt, 2016). Thus, the mutual significant bi-directional paths between shyness and AFA in the current model might be a reflection of individuals high both on shyness and AFA, while other combinations of shyness and AFA, such as low shyness and high AFA, are not represented.

To conclude, while the current model makes an important contribution to establishing the differential developmental pathways of shyness and AFA, utilizing a person-centered approach could advance the understanding of the multidimensional appearances of AFA and shyness. Study 2 in the current thesis was designed to address this issue.

Limitations and future directions

There are several limitations to the current study. First, the majority of the measures (except for friendship quality) were obtained through maternal reports. A multi-informant study could have provided a more complete understanding of the study's constructs. For instance, children could have a different perception of friendship quality than that of their friend's (Schneider, 1999). Therefore, future studies on the topic should attempt to utilize a multi-informant design (parental, child, child's friend, teacher).

Another limitation of the current study concerns its variable-centered approach to data analysis. While the auto-regressive cross-lagged model utilized here is a robust method to analyze longitudinal data, it might not be optimal for the simultaneous measurement of shyness and AFA due to evidence pointing to multidimensional appearance of these variables (Schmidt & Fox, 1994, Tang et al., 2016). Of note, the vast majority of studies that differentiated between shyness and AFA have used variable-centered analysis methods (with the exception, for example, of Coplan, Wilson, Frohlick & Zelenski 2016; Teppers, Luyckx, Vanhalst, Klimstra & Goossens, 2014). Person-centered methods, such as Latent Class Analysis (LCA; Muthen,

2004), could be more suitable to the analysis of multidimensional constructs (DiStefano & Kamphaus, 2006). Study 2 in the current thesis is designed to address this issue by analyzing shyness and AFA over time using LCA.

Another study limitation is regarding the measure of shyness, which included only items measuring relatively severe shyness (e.g., refused to talk, secretive). Shyness is regarded in the literature as heterogeneous and it ranges from chronic problematic shyness with significant impairment in functioning to milder forms with little to no malfunction (Henderson, 1992, Henderson, Gilbert & Zimbardo, 2014). Additionally, Asendorpf (1990) have conceptualized shyness as comprised of an approach component alongside avoidance and withdrawal components. The shyness measure utilized in the current study did not take into account an approach component of shyness or milder expressions of it, due to limitations in the available NICHD SECCYD data. Therefore, the associations of shyness with social skills and peer victimization reported here may be driven by relatively severe shyness and are not necessarily applicable to other forms of shyness. In order for these results to be generalizable to a wider range of shyness expressions, the measure of shyness should include items that assess approach motivation and milder shyness symptoms.

Notwithstanding the above limitations, the conceptual model of differentiating between shyness and AFA across time contributed to greater understanding of the developmental impact of AFA. Future studies should continue making this distinction in theory and measurement.

Conclusion

The current results support shyness and AFA as distinct forms of social withdrawal, with differential associations with social adjustment. Specifically, only shyness, but not AFA, emerged as related to lower social skills and greater victimization over time. This study

addressed several persistent gaps in the literature including both a lack of consistent differentiation between shyness and AFA in the same model and a lack of longitudinal studies.

The study results have implications for theory and practice, insofar as they provide evidence to alleviate concerns raised by scholars that AFA becomes increasingly maladaptive throughout middle childhood (e.g., Coplan & Weeks, 2010) with respect to friendship quality, victimization, and social skills. Additionally, these results could guide interventions because they show that an inclination for solitude is not inherently negative and that this behavior should not be alarming in the absence of social fears and adjustment difficulties.

References

- Achenbach, T. M. (1991). *Child behavior checklist/4-18*. Vermont: University of Vermont.
- Asendorpf, J. B. (1990). Beyond social withdrawal: Shyness, unsociability, and peer avoidance. *Human Development*, 33(4-5), 250-259. doi: 10.1159/000276522.
- Asendorpf, J. B., & Meier, G. H. (1993). Personality effects on children's speech in everyday life: sociability-mediated exposure and shyness-mediated reactivity to social situations. *Journal of Personality and Social Psychology*, 64(6), 1072. doi: 10.1037//0022-3514.64.6.1072.
- Bandura, A. (2011). Social cognitive theory. In P.A.M. Van Lange, A.W. Kruglanski, E.T. Higgins (Eds.), *Handbook of social psychological theories* (pp. 349-373). London: SAGE Publications Ltd.
- Bohlin, G., Hagekull, B., & Andersson, K. (2005). Behavioral inhibition as a precursor of peer social competence in early school age: The interplay with attachment and nonparental care. *Merrill-Palmer Quarterly*, 51(1), 1-19. doi: 10.1353/mpq.2005.0001.
- Boivin, M., Hymel, S., & Bukowski, W. M. (1995). The roles of social withdrawal, peer rejection, and victimization by peers in predicting loneliness and depressed mood in childhood. *Development and Psychopathology*, 7(04), 765-785. doi: 10.1017/S0954579400006830.
- Booth-LaForce, C., & Oxford, M. L. (2008). Trajectories of social withdrawal from grades 1 to 6: Prediction from early parenting, attachment, and temperament. *Developmental Psychology*, 44(5), 1298. doi: 10.1037/a0012954.
- Bowker, J. C., Markovic, A., Cogswell, A., & Raja, R. (2012). Moderating effects of aggression on the associations between social withdrawal subtypes and peer difficulties during early

- adolescence. *Journal of Youth and Adolescence*, 41(8), 995-1007. doi: 10.1007/s10964-011-9712-0.
- Bowker, J. C., & Raja, R. (2011). Social withdrawal subtypes during early adolescence in India. *Journal of Abnormal Child Psychology*, 39(2), 201-212. doi: 10.1007/s10802-010-9461-7.
- Bukowski, W. M., Laursen, B., & Hoza, B. (2010). The snowball effect: Friendship moderates escalations in depressed affect among avoidant and excluded children. *Development and Psychopathology*, 22(04), 749-757. doi: 10.1017/S095457941000043X.
- Cartwright-Hatton, S., Hodges, L., & Porter, J. (2003). Social anxiety in childhood: The relationship with self and observer rated social skills. *Journal of Child Psychology and Psychiatry*, 44(5), 737-742. doi: 10.1111/1469-7610.00159.
- Cartwright-Hatton, S., Tschernitz, N., & Gomersall, H. (2005). Social anxiety in children: social skills deficit, or cognitive distortion?. *Behaviour Research and Therapy*, 43(1), 131-141. doi: 10.1016/j.brat.2003.12.003.
- Cheek, J. M., & Buss, A. H. (1981). Shyness and sociability. *Journal of Personality and Social Psychology*, 41(2), 330.
- Chen, X., & French, D. C. (2008). Children's social competence in cultural context. *Annu. Rev. Psychol.*, 59, 591-616. doi: 10.1146/annurev.psych.59.103006.093606.
- Coplan, R. J., & Armer, M. (2005). Talking yourself out of being shy: Shyness, expressive vocabulary, and socioemotional adjustment in preschool. *Merrill-Palmer Quarterly*, 51(1), 20-41.

- Coplan, R. J., & Evans, M. A. (2009). At a loss for words? Introduction to the special issue on shyness and language in childhood. *Infant and Child Development*, 18(3), 211-215. doi: 10.1002/icd.620.
- Coplan, R. J., Girardi, A., Findlay, L. C., & Frohlick, S. L. (2007). Understanding solitude: Young children's attitudes and responses toward hypothetical socially withdrawn peers. *Social Development*, 16(3), 390-409. doi: 10.1111/j.1467-9507.2007.00390.x.
- Coplan, R. J., Prakash, K., O'Neil, K., & Armer, M. (2004). Do you" want" to play? Distinguishing between conflicted shyness and social disinterest in early childhood. *Developmental Psychology*, 40(2), 244. doi: 10.1037/0012-1649.40.2.244.
- Coplan, R. J., Rose-Krasnor, L., Weeks, M., Kingsbury, A., Kingsbury, M., & Bullock, A. (2013). Alone is a crowd: Social motivations, social withdrawal, and socioemotional functioning in later childhood. *Developmental Psychology*, 49(5), 861. doi: 10.1037/a0028861.
- Coplan, R. J., Schneider, B. H., Matheson, A., & Graham, A. (2010). 'Play skills' for shy children: development of a Social Skills Facilitated Play early intervention program for extremely inhibited preschoolers. *Infant and Child Development*, 19(3), 223-237. doi: 10.1002/icd.668.
- Coplan, R. J., & Weeks, M. (2009). Shy and soft-spoken: shyness, pragmatic language, and socio-emotional adjustment in early childhood. *Infant and Child Development*, 18(3), 238-254. doi: 10.1002/icd.622.
- Coplan, R. J., & Weeks, (2010). Unsociability and the preference for solitude in childhood. In K. H. Rubin & R. J. Coplan (Eds.) *The development of shyness and social withdrawal* (pp. 64-84). New York: The Guilford Press.

- Coplan, R. J., & Weeks, M. (2010). Unsociability in middle childhood: Conceptualization, assessment, and associations with socioemotional functioning. *Merrill-Palmer Quarterly*, 56(2), 105-130.
- Coplan, R. J., Wilson, J., Frohlick, S. L., & Zelenski, J. (2006). A person-oriented analysis of behavioral inhibition and behavioral activation in children. *Personality and Individual Differences*, 41(5), 917-927. doi: 10.1016/j.paid.2006.02.019.
- Crozier, W. R. (2010). Shyness and the development of embarrassment and the self-conscious emotions. In K.H, Rubin & R.J. Coplan (Eds.) *The development of shyness and social withdrawal* (pp. 42-63). New York: The Guildford Press.
- Ding, X., Weeks, M., Liu, J., Sang, B., & Zhou, Y. (2015). Relations between unsociability and peer problems in Chinese children: Moderating effect of behavioral control. *Infant and Child Development*, 24(1), 94-103. doi: 10.1002/icd.1864.
- DiStefano, C., & Kamphaus, R. W. (2006). Investigating subtypes of child development: a comparison of cluster analysis and latent class cluster analysis in typology creation. *Educational and Psychological Measurement*, 66(5), 778-794. doi: 10.1177/0013164405284033.
- Edelmann, R. J., & Baker, S. R. (2002). Self-reported and actual physiological responses in social phobia. *British Journal of Clinical Psychology*, 41(1), 1-14. doi: 10.1348/014466502163732.
- Eisenberg, N., Fabes, R. A., Karbon, M., Murphy, B. C., Carlo, G., & Wosinski, M. (1996). Relations of school children's comforting behavior to empathy-related reactions and Shyness. *Social Development*, 5(3), 330-351. doi: 10.1111/j.1467-9507.1996.tb00089.x.

- Findlay, L. C., Coplan, R. J., & Bowker, A. (2009). Keeping it all inside: Shyness, internalizing coping strategies and socio-emotional adjustment in middle childhood. *International Journal of Behavioral Development*, 33(1), 47-54. doi: 10.1177/0165025408098017.
- Fordham, K., & Stevenson-Hinde, J. (1999). Shyness, friendship quality, and adjustment during middle childhood. *Journal of Child Psychology and Psychiatry*, 40(5), 757-768. doi: 10.1111/1469-7610.00491.
- Gazelle, H., & Ladd, G. W. (2003). Anxious solitude and peer exclusion: A diathesis–stress model of internalizing trajectories in childhood. *Child Development*, 74(1), 257-278. doi: 10.1111/1467-8624.00534.
- Goodman, K. L., De Los Reyes, A., & Bradshaw, C. P. (2010). Understanding and using informants' reporting discrepancies of youth victimization: A conceptual model and recommendations for research. *Clinical Child and Family Psychology Review*, 13(4), 366-383. doi: 10.1007/s10567-010-0076-x.
- Gresham, F. M., & Elliot, S. N. (1990). *Manual for the social skills rating system*. Circle Pines, MN: American Guidance Service.
- Hanish, L. D., & Guerra, N. G. (2002). A longitudinal analysis of patterns of adjustment following peer victimization. *Development and Psychopathology*, 14(01), 69-89. doi: 10.1017/S0954579402001049.
- Harter, S. (1985). *Manual for the Self-perception Profile for Children: (Revision of the Perceived Competence Scale for Children)*. Colorado: University of Denver.
- Henderson, L. (1992). Shyness groups. In M. McKay & K. Paled (Eds.), *Focal group psychotherapy* (pp. 223-246). Oakland, CA: New Harbinger press.

- Henderson, L., Gilbert, P., & Zimbardo, P. (2014). Shyness, social anxiety, and social phobia. In S.G. Hofmann & P.M. Dibartolo, (Eds.), *Social Anxiety* (pp. 95-115). New York: Elsevier.
- Hodges, E. V., & Perry, D. G. (1999). Personal and interpersonal antecedents and consequences of victimization by peers. *Journal of Personality and Social Psychology*, 76(4), 677. doi: 10.1037/0022-3514.76.4.677.
- Karevold, E., Ystrom, E., Coplan, R. J., Sanson, A. V., & Mathiesen, K. S. (2012). A prospective longitudinal study of shyness from infancy to adolescence: Stability, age-related changes, and prediction of socio-emotional functioning. *Journal of Abnormal Child Psychology*, 40(7), 1167-1177. doi: 0.1007/s10802-012-9635-6.
- La Greca, A. M., & Lopez, N. (1998). Social anxiety among adolescents: Linkages with peer relations and friendships. *Journal of Abnormal Child Psychology*, 26(2), 83-94. doi: 10.1023/A:1022684520514.
- Ladd, G. W., Kochenderfer, B. J., & Coleman, C. C. (1996). Friendship quality as a predictor of young children's early school adjustment. *Child Development*, 67(3), 1103-1118. doi: 10.1111/j.1467-8624.1996.tb01785.x.
- Ladd, G. W., Kochenderfer-Ladd, B., Eggum, N. D., Kochel, K. P., & McConnell, E. M. (2011). Characterizing and comparing the friendships of anxious-solitary and unsociable preadolescents. *Child Development*, 82(5), 1434-1453. doi: 10.1111/j.1467-8624.2011.01632.x.
- Ladd, G. W., & Profilet, S. M. (1996). The Child Behavior Scale: A teacher-report measure of young children's aggressive, withdrawn, and prosocial behaviors. *Developmental Psychology*, 32(6), 1008. doi: 10.1037/0012-1649.32.6.1008.

- Liu, J., Coplan, R. J., Chen, X., Li, D., Ding, X., & Zhou, Y. (2014). Unsociability and shyness in Chinese children: Concurrent and predictive relations with indices of adjustment. *Social Development*, 23(1), 119-136. doi: 10.1111/sode.1203.
- Lowry-Webster, H. M., Barrett, P. M., & Dadds, M. R. (2001). A universal prevention trial of anxiety and depressive symptomatology in childhood: Preliminary data from an Australian study. *Behaviour Change*, 18(01), 36-50. doi: org/10.1375/behc.18.1.36.
- Muthén, B. (2004). Latent variable analysis. In D. Kaplan, (Ed.), *The Sage handbook of quantitative methodology for the social sciences*. Thousand Oaks, CA: Sage Publications.
- Muthén, L. K., & Muthén, B. O. (2012). *Mplus User's Guide 7*. Los Angeles, CA.
- Olweus, D. (1993). Victimization by peers: Antecedents and long-term outcomes. In K.H. Rubin & J.B. Asendorpf. (Eds.), *Social withdrawal, inhibition, and shyness in childhood*. New York: Psychology Press.
- Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*, 29(4), 611. doi: 10.1037/0012-1649.29.4.611.
- Raeff, C. (1997). Individuals in relationships: Cultural values, children's social interactions, and the development of an American individualistic self. *Developmental Review*, 17(3), 205-238. doi: 10.1006/drev.1997.0427.
- Rapee, R. M., Kennedy, S., Ingram, M., Edwards, S., & Sweeney, L. (2005). Prevention and early intervention of anxiety disorders in inhibited preschool children. *Journal of Consulting and Clinical Psychology*, 73(3), 488. doi: 10.1037/0022-006X.73.3.488.

- Rimm-Kaufman, S. E., & Kagan, J. (2005). Infant predictors of kindergarten behavior: The contribution of inhibited and uninhibited temperament types. In J. P. Bakken, F.E. Obiakor, A.F. Rotatori (Eds.). *Behavioral Disorders* (pp. 331-347). Emerald Group Publishing.
- Rubin, K. H. (1982). Social and Social—Cognitive Developmental Characteristics of Young Isolate, Normal, and Sociable Children. In K.H. Rubin & H.S. Ross, (Eds.) *Peer relationships and social skills in childhood* (pp. 353-374). New York: Springer.
- Rubin, K. H. & Asendorpf, J. (1993). *Social withdrawal, inhibition, and shyness in childhood*. New York: Psychology Press.
- Rubin, K. H., Bowker, J. C., & Gazelle, H. (2010). Social withdrawal in childhood and adolescence. In K.H. Rubin & R.J. Coplan, (Eds.) *The development of shyness and social withdrawal* (pp. 131-156). New York: The Guildford Press.
- Rubin, K. H., Bukowski, W. M., & Bowker, J. C. (2015). Children in peer groups. In R. M. Lerner (Series Ed.), M. H. Bornstein & T. Leventhal (Vol. Eds.), *Handbook of child psychology and developmental science, Vol. 4: Ecological settings and processes in developmental systems* (7th ed., pp. 175-222). New York: Wiley-Blackwell. doi: 0.1002/9781118963418.childpsy405.
- Rubin, K. H., Bukowski, W. M., & Laursen, B. (Eds.), (2011). *Handbook of peer interactions, relationships, and groups*. New York: Guilford Press.
- Rubin, K. H., Coplan, R. J., & Bowker, J. C. (2009). Social withdrawal in childhood. *Annual Review of Psychology*, 60, 141. doi: 10.1146/annurev.psych.60.110707.163642.
- Rubin, K. H., Wojslawowicz, J. C., Rose-Krasnor, L., Booth-LaForce, C., & Burgess, K. B. (2006). The best friendships of shy/withdrawn children: Prevalence, stability, and

- relationship quality. *Journal of Abnormal Child Psychology*, 34(2), 139-153. doi: 10.1007/s10802-005-9017-4.
- Schmidt, L. A., & Fox, N. A. (1994). Patterns of cortical electrophysiology and autonomic activity in adults' shyness and sociability. *Biological Psychology*, 38(2), 183-198. doi: 10.1016/0301-0511(94)90038-8.
- Schmidt, L. A., & Fox, N. A. (1995). Individual differences in young adults' shyness and sociability: Personality and health correlates. *Personality and Individual Differences*, 19(4), 455-462. doi: 10.1016/0191-8869(95)00083-I.
- Schneider, B. H. (1999). A multimethod exploration of the friendships of children considered socially withdrawn by their school peers. *Journal of Abnormal Child Psychology*, 27(2), 115-123. doi: 10.1023/A:1021959430698.
- Schneider, B. H., & Tessier, N. G. (2007). Close friendship as understood by socially withdrawn, anxious early adolescents. *Child Psychiatry and Human Development*, 38(4), 339-351. doi: 10.1007/s10578-007-0071-8.
- Shell, M. D., Gazelle, H., & Faldowski, R. A. (2014). Anxious solitude and the middle school transition: A diathesis× stress model of peer exclusion and victimization trajectories. *Developmental Psychology*, 50(5), 1569. doi: 10.1037/a0035528.
- Spence, S. H., Donovan, C., & Brechman-Toussaint, M. (2000). The treatment of childhood social phobia: The effectiveness of a social skills training-based, cognitive-behavioural intervention, with and without parental involvement. *Journal of Child Psychology and Psychiatry*, 41(6), 713-726. doi: 10.1111/1469-7610.00659.

- Stanhope, L., Bell, R. Q., & Parker-Cohen, N. Y. (1987). Temperament and helping behavior in preschool children. *Developmental Psychology*, 23(3), 347. doi: 10.1037/0012-1649.23.3.347.
- Tang, A., Santesso, D. L., Segalowitz, S. J., & Schmidt, L. A. (2016). Distinguishing shyness and sociability in children: An event-related potential study. *Journal of Experimental Child Psychology*, 142, 291-311. doi: 10.1016/j.jecp.2015.08.008.
- Teppers, E., Luyckx, K., Vanhalst, J., Klimstra, T., & Goossens, L. (2014). Attitudes Towards Aloneness During Adolescence: A Person-Centred Approach. *Infant and Child Development*, 23(3), 239-248. doi: 10.1002/icd.1856.
- Turner, S. M., Beidel, D. C., & Townsley, R. M. (1990). Social phobia: Relationship to shyness. *Behaviour Research and Therapy*, 28(6), 497-505. doi: 10.1016/0005-7967(90)90136-7.
- U.S. Census Bureau, Population Division, Fertility & Family Statistics Branch. (2004). *Current Population Survey: Definitions and explanations*. Retrieved from <http://www.census.gov/population/www/cps/cpsdef.html>.
- Waldrip, A. M., Malcolm, K. T., & Jensen-Campbell, L. A. (2008). With a little help from your friends: The importance of high-quality friendships on early adolescent adjustment. *Social Development*, 17(4), 832-852. doi: 10.1111/j.1467-9507.2008.00476.x.

Chapter 3 (Study 2): Longitudinal latent class analysis of affinity for aloneness and shyness in adolescence: Implications for socio-emotional adjustment

Social withdrawal in adolescence encompasses several different types of underlying approach-avoidance motivations. These motivations drive the tendency to seek aloneness versus being with peers (Asendorpf, 1990). Specifically, in *shyness*, individuals withdraw from others due to social fears and evaluative concerns, reflecting an avoidance motivation. At the same time, shy individuals have a social interest and desire to interact with others, reflecting an approach motivation. As a result, shy individuals experience an approach-avoidance conflict because there is a discrepancy between their diminished ability to aptly interact with others and their high interest in social exchange (Asendorpf & Meier, 1993). In contrast, those with *Affinity for aloneness* (AFA; also known as unsociability, Coplan, Prakash, O'Neil & Armer 2004, or preference for solitude, Leary, Herbst & McCrary, 2003) do not experience social fears or weariness, reflecting low avoidance motivation, and at the same time have low social interest, reflecting low approach motivation. Thus, adolescents high on AFA do not experience an approach-avoidance conflict and have been theorized to gravitate towards aloneness due to an innate preference (Rubin, 1982). Despite the theoretical distinction between shyness and AFA, little longitudinal research has been conducted to investigate the unique impact of AFA on social development in adolescence. Because adequate social interactions with peers are known as a central determinant of adaptive social development (Rubin, Coplan & Bowker, 2009), the goal of the current study is to understand whether adolescents with an AFA are compromised in that regard over time, as has been found for shyness (Coplan & Weeks, 2010b).

In the available, mostly cross-sectional, research, the distinct motivational profiles within the global construct of social withdrawal have been found to have differential socio-emotional

adjustment correlates. Specifically, shyness has been linked to a myriad of internalizing problems such as lower perceived social competence, poorer academic performance and negative emotionality (Coplan et al., 2013; Coplan & Weeks, 2009; Karevold, Ystrøm, Coplan, Sanson & Mathiesen, 2012). AFA, on the other hand, has been mostly found as benign in relation to socio-emotional adjustment (Ladd, Kochenderfer-Ladd, Eggum, Kochel, & McConnell, 2011). However, some researchers have reported AFA to be linked with peer maltreatment (e.g., Ding, Weeks, Liu, Sang & Zhou, 2015).

These contradictory findings may be attributed to several reasons. First, in the majority of studies on social withdrawal, researchers have not acknowledged its heterogeneity. Thus, it is possible that the negative socio-emotional correlates found in studies were driven by shyness and not AFA; nevertheless, conclusions were drawn regarding all subtypes of social withdrawal (e.g., Booth-LaForce & Oxford, 2008), which may have led to misrepresentation of AFA as tied to maladjustment.

Second, researchers who differentiated between shyness and AFA have used variable-centered data analysis methods that are not able to capture the multidimensional combinations of high and low levels of shyness and AFA. Because high and low shyness were demonstrated to co-occur with high and low levels of AFA (Cheek & Buss, 1981; Schmidt & Fox, 1994; Schmidt & Fox, 1995), person-centered analysis is a more appropriate approach to measure subgroup heterogeneity (Bergman & Trost, 2006; DiStefano & Kamphaus, 2006).

Third, the vast majority of studies that included measures of AFA were cross-sectional, and their findings could only be interpreted in correlational terms (e.g., Spangler & Gazelle, 2009). Therefore, the developmental understanding of AFA is highly limited.

It is important to improve the understanding of AFA in adolescence due to concerns raised by some scholars that AFA might become increasingly maladaptive during this life stage (e.g., Coplan & Weeks, 2010a), mainly because of the larger role that social relationships and peer interactions play in adjustment and well-being (Rubin, Coplan & Bowker, 2009). Moreover, the generalization of the results of studies on social withdrawal as a single construct to AFA in particular may lead to over-pathologization of AFA (Coplan & Weeks, 2009) and to unnecessary interventions that could negatively alter the otherwise well-adjusted development of adolescents with an AFA (Aho, 2010; Kwapil, & Barrantes-Vidal, 2014).

To conclude, the overall aim of the current study was to address the aforementioned gaps in the literature by utilizing a person-centered longitudinal study design to investigate the socio-emotional adjustment of adolescents high on AFA and low on shyness, as compared to adolescents who are low on both AFA and shyness.

Sub-group heterogeneity in AFA and Shyness

Several researches have provided empirical evidence to support the hypothesis that high and low levels of shyness could co-occur with high and low levels of sociability. Because sociability is a spectrum of affinity to being with others (Check & Buss, 1981), low sociability is theoretically similar to AFA.

Check and Buss (1981) provided some of the first empirical evidence to support the distinctiveness of shyness and (un)sociability. These authors identified four groups: shy-sociable, shy-unsociable, unshy-sociable and unshy-unsociable. In a dyadic interaction the unshy-unsociable group was comparable in social skills to the unshy-sociable group, while the shy-sociable group displayed greater anxiety and unease. The unshy-unsociable group matches the

definition of AFA as a non-conflictual, voluntary form of social withdrawal (Asendorph, 1990; Coplan & Armer, 2007).

In the same vein, Schmidt and Fox (1994) demonstrated that individual differences in shyness and sociability in young adults were distinct on a physiological level, such that individuals high on shyness and sociability had higher heart rate in anticipation of social interaction than did individuals low on shyness and sociability. Further, Tang, Santesso, Segalowitz and Schmidt (2016) demonstrated that individual differences in levels of shyness and sociability were distinguishable on neurocognitive measures of auditory processing and salivary cortisol in children ($Mage = 10.1$).

While these results support the notion that high/low AFA can co-occur with high/low shyness in adulthood and childhood, no study has directly demonstrated this effect in adolescence. Moreover, the impact of sub-group heterogeneity (i.e. high/low shyness in combination with high/low AFA) on socio-emotional development in adolescence is largely unknown.

A developmental perspective on AFA and Shyness

Several scholars (e.g., Asendorph, 1990; Hinde, 1982; Rubin, 1982) have proposed that heterogeneity in social withdrawal emerges already in early childhood. Further, some children choose to be less involved with peers due to low social interest and not due to social fearfulness (i.e., low approach and avoidance motivations; Asendorph, 1990). Because this behavioral profile does not involve a motivational conflict (as opposed to shyness), children with an AFA may benefit from constructive time they spend alone without a negative impact on their socio-emotional adjustment (Coplan & Armer, 2007). Indeed, in early childhood, an age in which parallel play is more common (Eckerman & Peterman, 2001), AFA appears to be unrelated to

negative socio-emotional consequences. For example, researchers who have compared shy children to children with an AFA (unsociable in the original text) and to non-withdrawn peers found that only shy children had more internalizing problems, depressive symptoms, social anxiety and negative affect (Coplan et al., 2013; Coplan & Weeks, 2010b) than did the other two groups. Additionally, children with an AFA were comparable to non-withdrawn children on measures of peer problems and social skills (Asendorpf & Meier 1993; Coplan & Weeks, 2010b).

In middle childhood, social norms and peer relationships become increasingly central to socio-emotional development and well-being (Rubin, Bukowski, & Bowker, 2015). Thus, AFA may be perceived by peers as more deviant and negative than higher levels of sociability. Indeed, children with an AFA (“unsociable” in the original article) were perceived as less appealing playmates and were less liked than were both shy and non-withdrawn children (Coplan, Girardi, Findlay & Frohlick, 2007). Coplan et al., (2013) investigated preadolescents (*Mage* = 10.16, *Range* = 9-12) and found that preference for solitude, as opposed to shyness, was not related to internalizing problems. However, it had an indirect effect on peer difficulties through negative peer response to the general display of social withdrawal. In contrast, Bowker and Raja (2011) investigated an older sample in India (*Mage* = 13.35) and reported that AFA, compared to shyness and avoidance, was not uniquely associated with peer exclusion or victimization. Interestingly, Wang, Rubin, Laursen, Booth-LaForce and Rose-Krasnor (2013) reported that AFA was related to greater anxiety, depression, emotion dysregulation and lower self-esteem among Grade 8 youth, but these associations became insignificant by Grade 12. It seems, therefore, that AFA in middle childhood may not have a direct negative impact on socio-emotional adjustment, but it might be indirectly related to peer problems. With that, Bower and

Raja's (2011) and Wang et al.,'s (2013) findings could indicate that the negative indirect effect might be attenuated among adolescents.

In adolescence, time spent in solitude increases compared to middle childhood and it is more positively regarded and purposefully sought after (Larson & Richards, 1991). For instance, in an Experience Sampling Method (ESM) study, children in Grades 7, 8 and 9 (but not 5 and 6) perceived solitude as a voluntary state that was associated with emotional renewal, self-reflection and better adjustment (Larson, 1997). Relatedly, Goossens and Marcoen (1999) found that time spent in solitude in adolescence promoted identity exploration and formation processes.

While these studies provide important evidence that constructive time spent alone in adolescence could have developmental benefits, they did not directly assess adolescents with an AFA but rather the general phenomena of increased frequency of solitude that is typical in adolescence. Adolescents with an AFA are a unique population because they are likely to spend greater than average time alone and may display solitary behaviors among peers. These tendencies might come at the expense of developmentally important social interactions and have negative adjustment implications. At the same time, it is possible that in the absence of an approach-avoidance conflict, a lower frequency of social exposure is sufficient to support healthy socio-emotional development in this age group. Despite the importance of the topic, surprisingly little research has addressed it directly and therefore it is important to bridge this gap in the literature.

The current study

The aforementioned studies on shyness versus AFA advanced the understanding of these constructs in adolescence; however, they share a methodological limitation in the usage of variable-centered data analyses. Variable-centered methods do not capture the multidimensional

appearances of individual difference in shyness and AFA, while person-centered methods (e.g., Latent Class Analysis; Muthen, 2004) are better suited for the study of distinct constructs and have greater ecological validity (Bergman & Magnusson, 1997; DiStefano, & Kamphaus, 2006).

Previous studies on adults and children have shown that individuals fall into distinct groups according to levels of shyness and sociability (Schmidt & Fox 1994, Tang et al., 2016). However, these groups were rarely studied in adolescence and then only from a variable-centered perspective (e.g., Wang et al., 2013). This is despite the importance of studying the developmental impact of AFA on socio-emotional adjustment in adolescence (Goossens, 2014).

In the current study, measures of shyness and AFA in Grade 11 were subjected to Latent Class Analysis (Muthen & Muthen, 2012). I hypothesized that four groups would emerge according to independent levels of high and low AFA and shyness: low on both AFA and shyness (low AFA-low SHY), high on AFA and low on shyness (high AFA-low SHY), high on both AFA and shyness (High AFA-High SHY) and low on AFA and high on shyness (low AFA-high SHY). I further hypothesized that the high AFA-low SHY group would be comparable to the low AFA-low SHY group and be better adjusted than the low AFA-high SHY group on important measures of socio-emotional adjustment (depression, self-esteem, friendship quality, stress and life satisfaction) in Grade 11 and Grade 12. The group high on AFA and high on shyness is outside the scope of the current study as it is theoretically akin to social avoidance (Coplan et al., 2016), a subtype of social withdrawal that has unique characteristics that deserve separate empirical attention.

Method

Participants

Students ($N = 728$) from eight high schools in Ontario, Canada, took part in a four-year study that spanned from Grade 9 to 12, as a part of a larger project on youth lifestyle choices.

The analyses in the current study were based on students in Grades 11 and 12 ($M_{age} = 16.4$, $SD = 0.6$, 51% female) due to interest in this age group and availability of relevant study measures.

Ninety-one percent of the adolescents were born in Canada and the most common ethnic backgrounds reported, other than Canadian, were British (18.1%), German (15.0%), French (12.7%), and Italian (10.5%), consistent with the broader Canadian population (Statistics Canada, 2003). Data on socioeconomic status indicated a mean of 3.01 ($SD = 1.34$) for mother's level of education and 3.07 ($SD = 1.42$) for father's level of education, with 3 indicating some college, university or apprenticeship program and 4 indicating completion of college/apprenticeship/technical diploma.

The participation rate ranged from 84% to 86% across the two waves. Missing data occurred because participants did not finish the questionnaire or did not complete both waves of the survey (10.6% of data, consistent with other longitudinal surveys; e.g., Ciarrochi, Leeson & Heaven, 2009; Feldman, Masyn & Conger, 2009; Petersen & Hyde, 2009). There were no significant differences on any of the study measures between participants who did not complete both waves and those with missing data within each wave. Because missing data were not dependent on the study measures, I had a basis to assume that the data were missing at random (Rubin & Little, 2002; Schafer & Graham, 2002). Therefore, missing data were imputed using Expectation Maximization (EM) algorithm in SPSS 20. EM has been demonstrated as superior to

other common methods of missing data estimation, such as pairwise and listwise deletion or mean substitution (Enders & Bandalos, 2001, Schafer & Graham 2002).

Procedure

Active informed assent was obtained from the adolescent participants. Prior to the survey administration, parents were provided with mailed correspondence outlining the study and indicating they could request that their children not participate in the study. Additionally, an automated voice mail message was left on each of the students' home phone number. This procedure was approved by the participating school boards and the University Research Ethics Board. At both time points, the questionnaires were administered to students in classrooms by trained research staff and students were informed that their responses were completely confidential.

Measures

All measures were assessed at Grade 11 and Grade 12. Measures of shyness and AFA were used as group affiliation indicators in the Latent Class Analysis, while measures of socio-emotional adjustment were used as outcome variables.

Shyness. Shyness was assessed using the Shyness Scale for Adolescents (SAS-A; La Greca & Lopez, 1998). Two subscales of SAS-A were used: "fear of negative evaluation" (6 items; e.g., "I worry about what other people my age think of me") and "social avoidance and distress in novel situation" (4 items; e.g., "I feel shy with people my age that I don't know well") Adolescents were asked to rate the degree to which each statement was accurate for them on a four-point Likert scale (1=Almost never or never, 4=Almost always or always), such that lower scores mean less shyness. The SAS-A has been previously established as a reliable and valid measure of shyness (La Greca & Lopez, 1998; Storch, Eisenberg & Roberti, 2003) and

demonstrated good reliability in the current sample ('Fear of negative evaluation' - $\alpha_{\text{grade11}} = .78$, $\alpha_{\text{grade12}} = .82$; 'Social avoidance and distress in novel situation' - $\alpha_{\text{grade11}} = .89$, $\alpha_{\text{grade12}} = .92$).

Affinity for Aloneness. Three items from the 'Affinity for Aloneness' subscale of the Louvain Loneliness and Aloneness Scale for Children and Adolescents (LLCA; Marcoen, Goossens & Caes, 1987) were adapted to measure the preference of adolescents to spend time by themselves. Items are as follows: "I like to do things on my own at home", "I get away from others because they disturb me with their noise" and "Being alone helps me renew my courage". Responses ranged from 1 = "Almost never or never", to 4 = "Almost always or always", such that higher scores indicate higher affinity for aloneness and positive attitude towards being alone. Construct validity of the scale was previously established (Goossens & Beyers, 2000) and it was translated into several languages (Richaud de Minzi, 2006). The scale achieved good reliability in the current sample ($\alpha_{\text{grade11}} = .88$, $\alpha_{\text{grade12}} = .86$).

Self-esteem. The Rosenberg Self-Esteem measure of global self-esteem (Rosenberg, 1965) was used to assess factors such as personal worthiness, appearance and social acceptance. Participants responded to questions on a 5-point Likert scale ranging from 'strongly agree' to 'strongly disagree', such that lower scores mean lower self-esteem. Sample items are: "On the whole, I am satisfied with myself" and "I feel that I'm a person of worth, at least equal with others". Scores on individual items were standardized and averaged to create an overall self-esteem measure and achieved good reliability ($\alpha_{\text{grade11}} = .98$, $\alpha_{\text{grade12}} = .88$).

Depression. The Centre for Epidemiological Studies Depression Scale (CES-D; National Institute of Mental Health, USA, 1972) was used to assess frequency of depressive symptoms experienced in the past two weeks on a 5-point Likert scale ranging from 'none of the time (less than one day)' to 'most of the time (10-14 days)'. Questions focus on affective components such

as depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disorders. Sample items are: “I thought my life had been a failure” and “I was bothered by things that usually don’t bother me”. Responses on individual items were standardized and averaged and the scale achieved good reliability ($\alpha_{\text{grade11}} = .89$, $\alpha_{\text{grade12}} = .86$).

Stress. This measure was created by the Youth Lifestyle Choices-Community University Research Alliance (YLC-CURA) to assess how frequently adolescents are bothered by everyday hassles, such as problems with a boyfriend/girlfriend, homework, appearance and not having many friends. Participants responded to 25 questions on a 3-point Likert scale: ‘almost never bothers me’ (1), ‘sometimes bothers me’ (2), and ‘often bothers me’ (3), such that higher scores mean more stress. Sample items are “Not having enough time”, “Not enough close friends”. Scores on individual items were standardized and averaged to create an overall measure of daily stressors and achieved good reliability ($\alpha_{\text{grade11}} = .86$, $\alpha_{\text{grade12}} = .91$).

Life satisfaction. The measure of life satisfaction comprised four items of the Life Optimism Test (LOT; Goodman, Knight & Durant, 1997) and one item original to the current study. The purpose of the scale was to measure the degree of student’s life satisfaction and optimism about the future. Sample items of the LOT are: “In uncertain times, I usually expect the best”, and “If something can go wrong for me, it will”- reversed item. The added item was: “I am happy with my life”. Scores on individual items were standardized and averaged to create an overall measure of life satisfaction and achieved good reliability ($\alpha_{\text{grade11}} = .76$, $\alpha_{\text{grade12}} = .82$).

Friendship quality. The peer subscale of the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987) was used to assess the quality of friendships adolescents have with their friends in general. The questions examine characteristics of close friendships such as

communication (e.g., “I can tell my friends about my problems and troubles”), trust (e.g., “My friends respect my feelings”) and alienation (“I feel alone or apart when I am with my friends”). Participants responded to questions on a 4-point Likert scale ranging from “almost always or always” to “almost never or never”, such that lower scores mean lower friendship quality. Responses on individual items were standardized and averaged at each time point and achieved good reliability ($\alpha_{\text{grade11}} = .9$, $\alpha_{\text{grade12}} = .91$).

Plan of analysis

I conducted Latent Class Analysis (LCA) using Mplus Version 7 (Muthen & Muthen, 2012) to assess subgroup heterogeneity in affinity for aloneness and shyness at grade 11. Latent class indicators included two subscales of the Shyness Scale for Adolescents: Social Avoidance and Distress in new situations/with strangers (SAD-N) and Fear of Negative Evaluation (FNE). As detailed above (see Introduction), these two subscales were chosen based on theoretical considerations. Additional indicators of the LCA were three items assessing AFA. I controlled for the effects of gender and level of maternal education.

To determine the number of classes that provided the best fit to the data, I considered three criteria: (1) Bayesian information criterion (BIC), by which smaller values indicate better fit to the data; (2) significance level of the Lo-Mendell-Rubin-Adjusted Likelihood Ratio Test (LMR-LRT) and the bootstrap ratio test (BLRT), where once one of these tests reaches non-significance, the number of classes prior to the non-significance is judged to be the better fitting model; (3) that no class will contain less than 5% of the total sample (Jung & Wickrama, 2008). Additionally, I assessed entropy, which reflects the degree of confidence with which individuals are assigned to their classes and that class distinctions exist.

Following the LCA, I conducted repeated measures multivariate analysis of variance (MANOVA) to assess differences in socio-emotional adjustment across groups of AFA and shyness both at Time 1 and Time 2. Follow-up comparisons were based either on Hochberg *post hoc* tests (due to unequal n's between classes), when the assumption of homogeneity of variance was met, or Games-Howell *post hoc* test for cases in which the assumption of homogeneity was not met.

Results

LCA of AFA and shyness indicated a four-class solution as the best fitting model (see Table 3-1 and Figure 3-1) according to the fit-criteria listed above. The LMR-LRT became non-significant for a five-class solution, which indicated that the last significant class count had the best fit to the data (four-class solution). Additionally, a four-class solution had a lower BIC value relatively to three and five-class solution, which indicated a better model fit. The four-class solution contained groups equal to or larger than 5% of the total sample, while a five-class solution violated that criterion. Additionally, the largest entropy value (81%) was found for four-class solution, which strengthens this group classification.

Results indicated that the largest group (61.8%) included individuals low on AFA and shyness, representing the normative non-withdrawn group and was labeled Low AFA-low SHY. The second group (21%) included individuals high on AFA and low on shyness and was labeled High AFA-low SHY. The third group (11.9%) included individuals high on AFA and high on shyness and was labeled High AFA-high SHY. The fourth group (5.3%) included individuals low on AFA and high on shyness, labeled Low AFA-high SHY.

Comparisons between groups of AFA and shyness on socio-emotional adjustment

To examine the hypothesis that adolescents high on AFA and low on shyness would not differ from non-withdrawn adolescents (low on AFA and low on shyness) on socio-emotional adjustment concurrently and a year later, I conducted a repeated measures MANOVA with group as the between-subjects factor and time (Times 1 and 2) and type of socio-emotional adjustment as the within-subjects factors. None of the interactions with gender were significant and I controlled for maternal education at Time 1.

Results indicated a significant effect of group affiliation, $F(3, 728) = 26.94, p = .000, \eta^2 = 0.1$, and a significant three-way interaction between time, group and socio-emotional adjustment measures ($\lambda = .97, F(12, 1918.5) = 1.99, p = .022, \eta^2 = .011$). Therefore, I proceeded to conduct post hoc analyses to assess group differences on socio-emotional adjustment in Grades 11 and 12 (see Tables 3-2 and 3-3).

Overall, and as hypothesized, the Low AFA-low SHY and High AFA-low SHY groups did not differ from each other across all socio-emotional adjustment measures at both time points. However, the High AFA-low SHY group was similar also to the High AFA-high SHY and Low AFA-high SHY groups on some socio-emotional adjustment measures.

In Grade 11, the Low AFA-low SHY and High AFA-low SHY groups reported higher self-esteem and higher life satisfaction than the High AFA-high SHY and Low AFA-high SHY groups. Additionally, the Low AFA-low SHY and High AFA-low SHY groups reported lower levels of depression and stress than did the High AFA-high SHY group. On friendship quality, the Low AFA-low SHY and High AFA-low SHY were similar, but the High AFA-low SHY group was also not different from the High AFA-high SHY and Low AFA-high SHY groups.

To conclude, on measures of self-esteem and life satisfaction, the Low AFA-low SHY and High AFA-low SHY were similar to each other and different from the other two groups (High AFA-high SHY and Low AFA-high SHY). On stress and depression, the Low AFA-low SHY and High AFA-low SHY were similar to each other but the High AFA-low SHY group was also similar to the High AFA-high SHY group and on friendship quality it resembled all three other groups.

In grade 12, the Low AFA-low SHY and High AFA-low SHY groups reported higher life satisfaction than did the High AFA-high SHY and Low AFA-high SHY groups. On self-esteem, the High AFA-low SHY group resembled the Low AFA-low SHY group, but also the High AFA-high SHY group. On measures of depression, stress and friendship quality, the High AFA-low SHY group resembled the Low AFA-low SHY group, but also both other groups (High AFA-high SHY and Low AFA-high SHY).

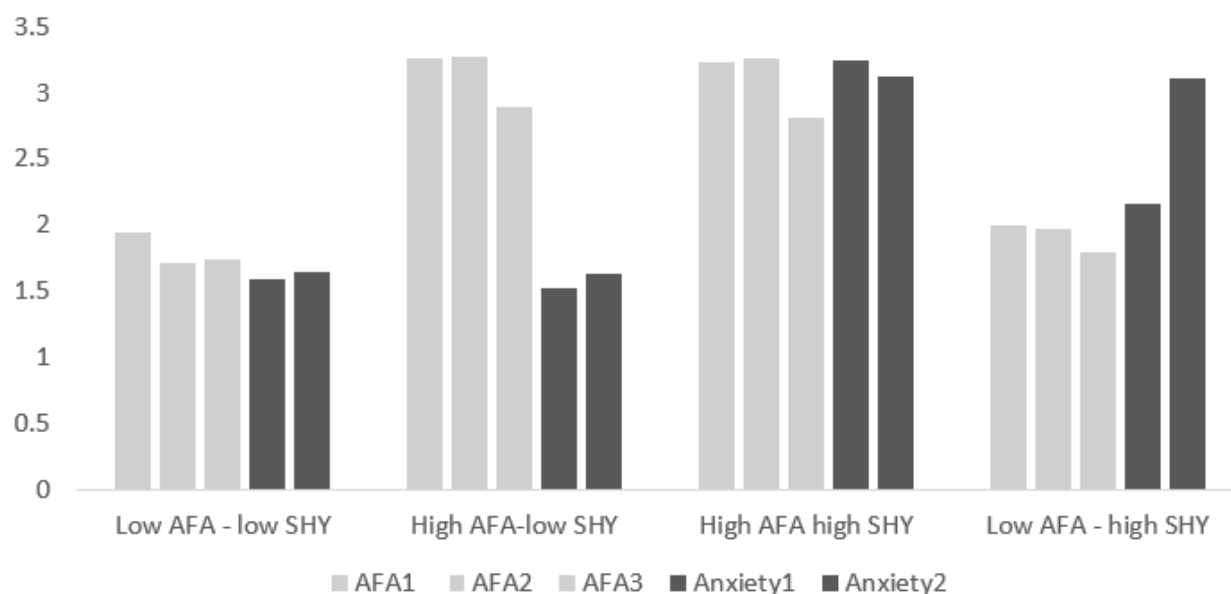
To conclude, in grade 12 the High AFA-low SHY remained similar to the non-withdrawn group (Low AFA-low SHY) but also became more similar to the other two groups, particularly on depression, friendship-quality and stress. Only on life-satisfaction did the High AFA-low SHY remained completely distinct from the High AFA-high SHY and Low AFA-high SHY groups.

Table 3-1. *Fit indices and classification precision for latent class model for affinity for aloneness and shyness*

Latent class	3 class solution	4 class solution	5 class Solution
BIC	7090.84	69993.54	7015.44
Entropy	0.79	0.81	0.73
Class >5%	Yes	Yes	No
LMR-LRT ^a	-3575.87	-3472.76	-3415.74
	(Sig)	(Sig)	(NS)
BLRT	Sig	Sig	Sig

BIC, Bayesian information criterion; Class >5% (all classes contain more than 5% of the total sample), LMR-LRT, Lo-Mendell-Rubin-adjusted likelihood ratio test; BLRT, bootstrap likelihood ratio test (test of fit between the model of interest (e.g. four-class model vs. three-class model); Sig, significant; NS, non-significant.

Figure 3-1. *Standardized mean values of affinity for aloneness and shyness at in Grade 11 (Time 1).*



AFA 1,2,3 are single item indicators of Affinity for Aloneness (Marcoen, Goossens, & Caes, 1987), higher scores mean higher AFA. Shyness1 and Shyness2 are mean scores of the scales Fear of Negative Evaluation (FNE) and Social Avoidance and Distress in New situations (SAD-N; La-Greca, 2004) respectively. Higher scores mean higher shyness. Group percentages represent percentages of the total sample.

Table 3-2. *Significant mean differences on socio-emotional adjustment indices between groups of affinity for aloneness and shyness in Grade 11.*

	low AFA- low SHY (n = 451)	high AFA- low SHY (n=153)	High AFA- high SHY (n=86)	Low AFA- high SHY (n=38)	<i>F</i>	<i>df</i>	<i>p</i>	η^2
Self-esteem	0.19 (.96) ^a	-0.05 (.94) ^a	-0.49 (.93) ^b	-1.18 (.97) ^c	32.5	3, 728	.000	.12
Depression	-0.17 (.88) ^a	0.09 (1.1) ^{a,b}	0.46 (1) ^{b,c}	0.7 (1.27) ^c	19.1	3, 728	.000	.072
Stress	-0.11 (.94) ^a	-0.01 (1.1) ^{a,b}	0.33 (1.13) ^{b,c}	0.67 (1) ^c	10.4	3, 728	.000	.047
Friendship-quality	0.18 (.96) ^a	-0.18 (1) ^{a,b}	-0.39 (.93) ^b	-0.47 (1.2) ^b	13.9	3, 728	.000	.054
Life-satisfaction	0.14 (.92) ^a	0.08 (1) ^a	-0.48 (1.1) ^b	-0.93 (1.2) ^c	21.6	3, 728	.000	.081

Note. Values with different superscripts in the same row are significantly different from each other. Standard deviations are presented in parentheses. Higher scores mean higher self-esteem, more depression, more stress, better friendship quality and higher life satisfaction.

Table 3-3. *Significant mean differences on socio-emotional adjustment indices between groups of affinity for aloneness and shyness in Grade 12.*

	low AFA- low SHY (n = 451)	high AFA- low SHY (n = 153)	High AFA- high SHY (n=86)	Low AFA- high SHY (n=38)	<i>F</i>	<i>df</i>	<i>p</i>	η^2
Self-esteem	.11 (.98) ^a	-.05 (.98) ^{a,b}	-.42 (.84) ^{b,c}	-.46 (1.2) ^c	10	3, 728	.000	.039
Depression	-.07 (1) ^a	.06 (.92) ^{a,b}	.3 (.9) ^{a,b}	.44 (1.2) ^b	5.9	3, 728	.000	.024
Stress	-.06 (1) ^a	-.05 (1) ^a	.22 (.9) ^{a,b}	.53 (1) ^b	5.3	3, 728	.001	.022
Friendship- quality	.01 (1) ^a	-.13 (1) ^{a,b}	-.31 (.9) ^{a,b}	-.02 (.1) ^b	5.2	3, 728	.001	.021
Life - satisfaction	.11 (.96) ^a	.06 (1) ^a	-.52 (.92) ^b	-.38 (1.1) ^b	11.8	3, 728	.000	.046

Note. Values with different superscripts in the same row are significantly different from each other. Standard deviations are presented in parentheses. Higher scores mean higher self-esteem, more depression, more stress, better friendship quality and higher life satisfaction.

Discussion

The aims of the current study were to investigate whether adolescents fall into distinct groups of social withdrawal types according to independent levels of shyness and AFA, and whether socio-emotional adjustment is linked to group affiliation. In line with hypothesis, results confirmed a four-group taxonomy: Adolescents low on AFA and shyness (Low AFA-low SHY), high on AFA and low on shyness (high AFA-low SHY), high on both AFA and shyness (high AFA-high SHY) and low on AFA and high on shyness (low AFA-high SHY). Overall, the high AFA-low SHY group was comparable to the low AFA-low SHY group on measures of socio-emotional adjustment, in grades 11 and 12, confirming the main study hypotheses. However, on several measures, the High AFA-low SHY group was also similar to the other two groups (High AFA-high SHY and low AFA-high SHY). Possible explanations for these results will be discussed later in this chapter. Regardless, the current findings provide the first evidence that combinations of high/low levels of AFA and shyness create distinct sub-groups in adolescence, and that when high AFA was not accompanied by high levels of shyness it was mostly benign for socio-emotional adjustment.

Sub-group heterogeneity in AFA and Shyness

The four-group taxonomy reported here is aligned with the results of several seminal studies on individual differences in social preferences. Recall that Check and Buss (1981) showed that levels of sociability are distinct from levels of shyness/social anxiety among adults. These differences were also demonstrated on a physiological level in ERP studies among adults (Schmidt & Fox, 1994) and 10-year-old children (Tang et al., 2016). Schmidt and Fox (1995) showed that independent levels of shyness and sociability in a sample of young women were uniquely related to personality and health indicators, such that only those with extreme shyness

reported higher levels of emotional and psychosomatic problems. However, the aforementioned studies did not focus specifically on the characteristics of those low on shyness and sociability, the motivational profile that defines AFA (Asendorpf, 1990).

To the best of my knowledge, only two recent studies have used person-centered methods to study AFA and shyness. Teppers, Luyckx, Vanhalst, Kilmstra and Goossens (2014) reported that adolescents with an AFA had better psychological adjustment than did those with aversion to aloneness. Coplan et al., (2016) reported that children with an AFA were not disadvantaged on measures of peer and academic adjustment as compared to shy and avoidant Chinese children. Both Teppers et al., (2014) and Coplan et al., (2016) utilized Cluster Analysis (Aldenderfer & Blashfield, 1984), a person-centered method used to uncover groups underlying a data set. This method has been criticized on two main principles. First, the method lacks a defined set of statistical fit indices that could help determine the final solution, which may lead to biases in interpretation (Steinley, 2003). Further, the method requires homogeneity of variance across groups, a requirement that is often violated when psychological variables are studied (Vermunt & Magidson, 2002). Latent Class Analysis (Muthen, 2004), on the other hand, allows for heterogeneity in variance across groups and for the covariances between variables to be different than zero (DiStefano & Kamphaus, 2006). Moreover, LCA allows covariates to be incorporated into the model, in order to control for background information (e.g., age and gender). To conclude, LCA appears to be a more flexible and ecologically valid method to study independent constructs in psychology than cluster analysis.

The current use of LCA to demonstrate that high/low levels of AFA may co-occur with high/low levels of shyness among adolescents addressed a missing link in the literature, because previous studies have only focused on adults (e.g., Cheek & Buss, 1981, Fox & Schmidt, 1995)

and children (e.g., Tang et al., 2016) or did not measure shyness in addition to AFA (Teppers et al., 2014). Understanding AFA and shyness in adolescence is important due to evidence that the frequency of aloneness tends to increase in this life stage (Larson, 1990), while maintaining social ties and interactions remains central for healthy development (Rubin et al., 2009).

Impact of group affiliation on socio-emotional adjustment

The high AFA-low SHY group was comparable to the low AFA-low SHY on important measures of adjustment across Grades 11 and 12. This effect was particularly robust for life satisfaction, where the high AFA-low SHY group was not different from the low AFA-low SHY group. However, the other two groups, high AFA-high SHY and low AFA-high SHY, had significantly lower scores on life satisfaction, both in Grades 11 and 12.

On the measure of self-esteem, the high AFA-low SHY group was comparable to the low AFA-low SHY group and had significantly higher self-esteem than did the other two groups of social withdrawal in Grade 11. In Grade 12, the high AFA-low SHY group remained comparable to the low AFA-low SHY but also became similar to the high AFA-high SHY group. On measures of depression, stress and friendship quality, the high AFA-low SHY group resembled both the low AFA-low SHY and the high AFA-high SHY groups in Grades 11 and 12.

These results may be explained in part by the unique social pressures that characterize the last years of high-school (Gall, Evans & Bellerose, 2000). The end of high-school and the looming transition to more independent living (e.g., college, work) is marked by changes in multiple social circles, such as separation from parents, modifying existing relationships with peers and establishing new social ties (Parker, Summerfeldt, Hogan & Majeski, 2002). Establishing new social relationships in the transition to college was suggested as the main determinant of psychological well-being during the college years (Asendorpf, 2000). In the same

vein, high sociability was linked to greater social capital and lower levels of depression, anxiety and loneliness during the transition to college (Gerdes & Mallinckrodt, 1994). Due to their preference to spend time in solitude, adolescents with an AFA might have more limited access to social capital resources and not accumulate multitude of social ties. Although adolescents with an AFA are as likely to have close friendships as non-withdrawn peers (Rubin et al., 2015), they might be at a disadvantage when it comes to establishing broad social networks that are important when transitioning to a new environment such as college (Hays & Oxley, 1986; Mounts, Valentiner, Anderson & Boswell, 2006). Therefore, while the self-esteem and life satisfaction of adolescents in the high AFA-low SHY group do not seem to be harmed because their natural tendency towards solitude is fulfilled, they might not be shielded from a certain degree of negative impact due to social dynamics that favor those with larger social networks.

Interestingly, the only two groups that were consistently different from each other thorough Grades 11 and 12 and across all socio-emotional adjustment variables were the low AFA-low SHY and the low AFA-high SHY groups. The low AFA-high SHY group could be theoretically conceptualized as *conflicted shyness*, which is a result of a misalignment between one's desire to interact socially with others (high approach motivation) and simultaneous social fears that limit the ability to socialize aptly (high avoidance motivation; Coplan & Rubin, 2010). Such internal conflict that is experienced only by the low AFA-high SHY group and seems to be particularly detrimental for socio-emotional adjustment over time.

To conclude, adolescents affiliated with the high AFA-low SHY group emerged as mostly well-adjusted, probably because they did not experience a motivational conflict and volitionally chose to spend time alone. In addition, there was an indication that their adjustment might not always be optimal, perhaps due to factors such as peer-acceptance and breadth of

social networks. This study provides a strong foundation for future studies to better understand the impact of non-fearful AFA on socio-emotional adjustment in adolescence.

Limitations and future directions

Despite the current study's marked strengths, such as longitudinal design, use of LCA and differentiation among types of social withdrawal, it is not without limitations. For instance, some of the study results could be explained by influencing variables that were not measured, such as peer victimization and exclusion. Several previous studies have demonstrated that adolescents with an AFA might be at risk for peer victimization and exclusion, and that the degree to which they suffered such maltreatment had a major impact on their well-being (Bowker, Markovic, Cogswell & Raja, 2012; Coplan et al., 2013; Ding, et al., 2014). If the high AFA-low SHY adolescents had elevated levels of peer exclusion and/or victimization that were not controlled for, then this potential shared variance could indirectly link AFA with stress, depression and lower friendship quality (as was shown in Coplan et al., 2013). Future studies should incorporate measures of peer maltreatment and investigate its prevalence and impact on adolescents with an AFA.

A related interesting question for future research is to distinguish which characteristics of adolescents with an AFA may trigger peer maltreatment. Previous research has already identified individual differences within AFA. For instance, Long, Seburn, Averill and More (2003) studied emerging adults and validated as many as nine types of solitude that converged into three constructs: inner-directed solitude (e.g., solitude as self-discovery); outer-directed solitude (e.g., solitude as intimacy); and loneliness (e.g., solitude as diversion). Inner- and outer-directed solitude were positively correlated with adjustment and well-being, while loneliness was negatively correlated with these measures. It would be interesting to validate subtypes of AFA in

adolescence and investigate whether certain subtypes, but not others, are more likely to invoke peer maltreatment.

Another limitation of the current study is its reliance on adolescent's self-report. Although the adolescents themselves are most qualified to attest to the reasons they withdraw from others and evaluate their subjective well-being, greater ecological validity might have been achieved if additional informants were included in the study. For instance, Schneider (1999) reported that socially withdrawn children tended to evaluate their close friendships as being of higher quality compared to the evaluation of their best friend. Thus, obtaining best friends' ratings of friendship quality could have provided a more comprehensive understanding of the dynamics between the investigated variables. Therefore, future studies should utilize a multi-informant design, including participants' peers, parents and teachers.

Additionally, the current analyses were based on two time points (Grades 11 and 12), which limited my ability to investigate trajectories of transition in AFA. There is some evidence (albeit among children) that social withdrawal levels might change over time (Booth La-Force & Oxford, 2008) and that these changes depend on factors such as peer exclusion (Gazelle & Rudolph, 2004). While the current study comprised the first longitudinal investigation that utilized a person-centered approach to investigate AFA in adolescence, future studies should investigate a longer time span to increase the understanding of changes in AFA across adolescence and the impact of these changes on adjustment. For instance, a longitudinal study that would follow adolescents across high school and utilize Latent Transition Analysis (Muthen, 2004) to investigate whether adolescents with an AFA are more likely to transition to a non-withdrawn group or develop fearful social withdrawal. It would be of interest to investigate whether such transitions are moderated by factors such as gender, peer acceptance and

participation in extra-curricular activities. Additionally, it would be particularly important to investigate if any changes occur in the manifestation and impact of AFA from adolescence to emerging adulthood. Several studies found that AFA in emerging adulthood did not have negative implications for socio-emotional adjustment, unlike the mixed results reported in adolescence (e.g., Kim, Rapee, Oh & Moon, 2008; Nelson, 2013). Perhaps greater tolerance for diverse social preferences that develops during emerging adulthood (Arnett, 2014; Lefkowitz, 2005) would provide a more beneficial context for those high on AFA and low on shyness.

Conclusions and Implications

The current study advances the literature on social withdrawal in general and on AFA in particular by demonstrating that high/low levels of AFA may co-occur with high/low levels of shyness in adolescence. It thus provides an important addition to previous research that has demonstrated this effect among children (Tang et al., 2016) and adults (Schmidt & Fox, 1994). The current results suggest that approximately every 1 in 5 adolescents has a relatively high level of AFA that is not accompanied by shyness. This is a substantial group that was largely overlooked in the literature to date, due to lack of differentiation between AFA and other types of social withdrawal.

The present results suggested that adolescents with non-fearful AFA are relatively well-adjusted as compared to non-withdrawn adolescents, and that the main driver of socio-emotional difficulties appears to be a conflict between approach and avoidance motivations.

These findings have practical implications for intervention and treatment, because AFA may have been over-pathologized and unnecessarily treated due to lack of differentiation from more harmful types of social withdrawal (Kwapil & Barrantes-Vidal, 2014). Unnecessary intervention may instill in children and youth with an AFA the feeling that something is wrong

about them and provoke social comparisons and fears, which are the very symptoms the interventions have been designed to treat (Aho, 2010; Crozier, 2014). The medicalization of social withdrawal has been influenced in part by the cultural climate in North America post-World War II, which portrayed the ideal self as sociable and outgoing (Conard, 2008). These cultural norms influenced mental health practitioners to encourage a templated model of health, marked by being gregarious (Scott, 2006). Such standard of normalcy could be perceived by those with an AFA as foreign to their innate tendencies, set an unattainable bar and trigger feelings of inadequacy. In that way, unnecessary interventions may inadvertently inflict harm rather than bring help.

The findings of the current study highlight the proposition that not all subtypes of social withdrawal have the same negative impact on socio-emotional adjustment in adolescence. Specifically, AFA, as opposed to fearful subtypes of social withdrawal, is mostly benign. Therefore, any intervention among adolescents with an AFA should be carefully considered.

To conclude, the results of the present study mark an advancement towards a more comprehensive understanding of AFA in adolescence and lay the foundation for future studies that could explore more advanced typologies of AFA and their interactions with contextual factors, such as peer acceptance and social capital.

References

- Aho, K. (2010). The psychopathology of American shyness: A hermeneutic reading. *Journal for the Theory of Social Behaviour*, 40(2), 190-206. doi: 10.1111/j.1468-5914.2009.00425.x.
- Aldenderfer, M. S., & Blashfield, R. K. (1984). *Cluster analysis*. Beverly Hills: Sage.
- Armsden, G. C., & Greenberg, M. T. (1987). The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence*, 16(5), 427-454. doi: 10.1007/BF02202939.
- Arnett, J. J. (2014). *Emerging adulthood: The winding road from the late teens through the twenties*. Oxford University Press.
- Asendorpf, J. B. (1990). Beyond social withdrawal: Shyness, unsociability, and peer avoidance. *Human Development*, 33(4-5), 250-259. doi: 10.1159/000276522.
- Asendorpf, J. B. (1993). Abnormal shyness in children. *Journal of Child Psychology and Psychiatry*, 34(7), 1069-1083. doi: 10.1111/j.1469-7610.1993.tb01774.x.
- Asendorpf, J. B. (2000). Shyness and adaptation to the social world of university. In W.R. Crozier (Ed.), *Shyness: Development, consolidation, and change* (pp. 103-120). London & New York: Routledge.
- Asendorpf, J. B., & Meier, G. H. (1993). Personality effects on children's speech in everyday life: sociability-mediated exposure and shyness-mediated reactivity to social situations. *Journal of Personality and Social Psychology*, 64(6), 1072. doi: 10.1037/0022-3514.64.6.1072.

- Bergman, L. R., & Magnusson, D. (1997). A person-oriented approach in research on developmental psychopathology. *Development and Psychopathology*, 9(02), 291-319. doi: 10.1017/S095457949700206X.
- Bergman, L. R., & Trost, K. (2006). The person-oriented versus the variable-oriented approach: Are they complementary, opposites, or exploring different worlds? *Merrill-Palmer Quarterly*, 52(3), 601-632. doi: 10.1353/mpq.2006.0023.
- Booth-LaForce, C., & Oxford, M. L. (2008). Trajectories of social withdrawal from grades 1 to 6: prediction from early parenting, attachment, and temperament. *Developmental Psychology*, 44(5), 1298. doi: 10.1037/a0012954.
- Bowker, J. C., Markovic, A., Cogswell, A., & Raja, R. (2012). Moderating effects of aggression on the associations between social withdrawal subtypes and peer difficulties during early adolescence. *Journal of Youth and Adolescence*, 41(8), 995-1007. doi: 10.1007/s10964-011-9712-0.
- Bowker, J. C., & Raja, R. (2011). Social withdrawal subtypes during early adolescence in India. *Journal of Abnormal Child Psychology*, 39(2), 201-212. doi: 10.1007/s10802-010-9461-7.
- Cheek, J. M., & Buss, A. H. (1981). Shyness and sociability. *Journal of Personality and Social Psychology*, 41(2), 330. doi: 10.1037/0022-3514.41.2.330.
- Ciarrochi, J., Leeson, P., & Heaven, P. C. (2009). A longitudinal study into the interplay between problem orientation and adolescent well-being. *Journal of Counseling Psychology*, 56(3), 441. doi: 10.1037/a0015765.

- Coplan, R. J., & Armer, M. (2007). A “multitude” of solitude: A closer look at social withdrawal and nonsocial play in early childhood. *Child Development Perspectives*, 1(1), 26-32. doi: 10.1111/j.1750-8606.2007.00006.x.
- Coplan, R. J., Girardi, A., Findlay, L. C., & Frohlick, S. L. (2007). Understanding solitude: Young children's attitudes and responses toward hypothetical socially withdrawn peers. *Social Development*, 16(3), 390-409. doi: 10.1111/j.1467-9507.2007.00390.x.
- Coplan, R. J., Liu, J., Ooi, L. L., Chen, X., Li, D., & Ding, X. (2016). A Person-Oriented Analysis of Social Withdrawal in Chinese Children. *Social Development*. doi: 10.1111/sode.12181.
- Coplan, R. J., Prakash, K., O'Neil, K., & Armer, M. (2004). Do you" want" to play? Distinguishing between conflicted shyness and social disinterest in early childhood. *Developmental Psychology*, 40(2), 244. doi: 10.1037/0012-1649.40.2.244.
- Coplan, R. J., Rose-Krasnor, L., Weeks, M., Kingsbury, A., Kingsbury, M., & Bullock, A. (2013). Alone is a crowd: Social motivations, social withdrawal, and socioemotional functioning in later childhood. *Developmental Psychology*, 49(5), 861. doi: 10.1037/a0028861.
- Coplan, R. J., & Rubin, K. H. (2010). Social withdrawal and shyness in childhood. In: Rubin K.H., Coplan R.J. (Eds). *The Development of Shyness and Social Withdrawal*, (pp. 3-20). New York: The Guilford Press.
- Coplan, R. J., & Weeks, M. (2009). Shy and soft-spoken: shyness, pragmatic language, and socio-emotional adjustment in early childhood. *Infant and Child Development*, 18(3), 238-254. doi: 10.1002/icd.622.

- Coplan, R. J., & Weeks, (2010). Unsociability and the preference for solitude in childhood. In K.H. Rubin & R.J. Coplan (Eds). *The development of shyness and social withdrawal*, (pp. 64-83). New York: The Guilford Press.
- Coplan, R. J., & Weeks, M. (2010). Unsociability in middle childhood: Conceptualization, assessment, and associations with socioemotional functioning. *Merrill-Palmer Quarterly*, 56(2), 105-130.
- Conrad, P. (2008). *The medicalization of society: On the transformation of human conditions into treatable disorders*. John Hopkins University Press.
- Crozier, W. R. (2010). Shyness and the development of embarrassment and the self-conscious emotions. In K.H. Rubin & R.J. Coplan (Eds.), *The development of shyness and social withdrawal* (pp. 42-63). New York: The Guildford Press.
- Ding, X., Weeks, M., Liu, J., Sang, B., & Zhou, Y. (2015). Relations between unsociability and peer problems in Chinese children: Moderating effect of behavioral control. *Infant and Child Development*, 24(1), 94-103. doi: 10.1002/icd.1864.
- DiStefano, C., & Kamphaus, R. W. (2006). Investigating subtypes of child development: a comparison of cluster analysis and latent class cluster analysis in typology creation. *Educational and Psychological Measurement*, 66(5), 778-794.
- Eckerman, C. O., & Peterman, K. (2001). Peers and infant social/communicative development. In J.G. Bremner & A. Fogel (Eds.) *Blackwell handbook of infant development* (pp. 326). Great Britain: TJ Internationasl, Padstow, Cornwall.
- Enders, C. K., & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural Equation Modeling*, 8(3), 430-457. doi: 10.1207/S15328007SEM0803_5.

- Feldman, B. J., Masyn, K. E., & Conger, R. D. (2009). New approaches to studying problem behaviors: a comparison of methods for modeling longitudinal, categorical adolescent drinking data. *Developmental Psychology*, 45(3), 652. doi: 10.1037/a0014851.
- Gall, T. L., Evans, D. R., & Bellerose, S. (2000). Transition to first-year university: Patterns of change in adjustment across life domains and time. *Journal of Social and Clinical Psychology*, 19(4), 544. doi: 10.1521/jscp.2000.19.4.544.
- Gazelle, H., & Rudolph, K. D. (2004). Moving toward and away from the world: Social approach and avoidance trajectories in anxious solitary youth. *Child Development*, 75(3), 829-849. doi: 10.1111/j.1467-8624.2004.00709.x.
- Gerdes, H., & Mallinckrodt, B. (1994). Emotional, social, and academic adjustment of college students: A longitudinal study of retention. *Journal of Counseling and Development: JCD*, 72(3), 281. doi: 10.1002/j.1556-6676.1994.tb00935.x.
- Goodman, E., Knight, J. R., & DuRant, R. H. (1997). Use of the Life Optimism Test among adolescents in a clinical setting: A report of reliability testing. *Journal of Adolescent Health*, 21(4), 218-220. doi: 10.1016/S1054-139X(97)00123-7.
- Goossens, L. (2014). Affinity for Aloneness in Adolescence and Preference for Solitude in Childhood. In R.J. Coplan & J.C. Bowker (Eds.), *The handbook of solitude* (pp. 150 – 167). Oxford: Wiley & Sons. doi: 10.1002/9781118427378.ch9.
- Goossens, L., & Beyers, W. (2002). Comparing measures of childhood loneliness: Internal consistency and confirmatory factor analysis. *Journal of Clinical Child and Adolescent Psychology*, 31(2), 252-262. doi: 10.1207/S15374424JCCP3102_10.

- Goossens, L., & Marcoen, A. (1999). Adolescent Loneliness, Self-Reflection, and Identity: From Individual Differences to Developmental Processes. In K.J. Rotenberg & S. Hymel (Eds.) *Loneliness in childhood and adolescence* (pp. 225-244). Cambridge University Press.
- Hays, R. B., & Oxley, D. (1986). Social network development and functioning during a life transition. *Journal of Personality and Social Psychology*, 50(2), 305. doi: 10.1037//0022-3514.50.2.305.
- Hinde, R. A. (1982). Attachment: Some conceptual and biological issues. In C.M. Parks & J. Stevenson-Hinde, (Eds). *The place of attachment in human behavior* (pp. 60-76). New York: Basic Books.
- Jung, T., & Wickrama, K. A. S. (2008). An introduction to latent class growth analysis and growth mixture modeling. *Social and Personality Psychology Compass*, 2(1), 302-317. doi: 10.1111/j.1751-9004.2007.00054.x.
- Karevold, E., Ystrom, E., Coplan, R. J., Sanson, A. V., & Mathiesen, K. S. (2012). A prospective longitudinal study of shyness from infancy to adolescence: Stability, age-related changes, and prediction of socio-emotional functioning. *Journal of Abnormal Child Psychology*, 40(7), 1167-1177. doi: 10.1007/s10802-012-9635-6.
- Kim, J., Rapee, R. M., Oh, K. J., & Moon, H. S. (2008). Retrospective report of social withdrawal during adolescence and current maladjustment in young adulthood: Cross-cultural comparisons between Australian and South Korean students. *Journal of Adolescence*, 31(5), 543-563. doi: 10.1016/j.adolescence.2007.10.011.
- Kwapil, T. R., Silvia, P. J., & Barrantes-Vidal, N. (2014). Social anhedonia and solitude. In R.J. Coplan & J.C. Bowker (Eds), *The handbook of solitude* (pp. 371-391). Wiley Blackwell.

- La Greca, A. M., & Lopez, N. (1998). Social anxiety among adolescents: Linkages with peer relations and friendships. *Journal of Abnormal Child Psychology*, 26(2), 83-94. doi: 10.1023/A:1022684520514.
- Ladd, G. W., Kochenderfer-Ladd, B., Eggum, N. D., Kochel, K. P., & McConnell, E. M. (2011). Characterizing and comparing the friendships of anxious-solitary and unsociable preadolescents. *Child Development*, 82(5), 1434-1453. doi: 10.1111/j.1467-8624.2011.01632.x.
- Larson, R. W. (1990). The solitary side of life: An examination of the time people spend alone from childhood to old age. *Developmental Review*, 10(2), 155-183. doi: 10.1016/0273-2297(90)90008-R.
- Larson, R. W. (1997). The emergence of solitude as a constructive domain of experience in early adolescence. *Child Development*, 80-93. doi: 10.2307/1131927.
- Larson, R., & Richards, M. H. (1991). Daily companionship in late childhood and early adolescence: Changing developmental contexts. *Child Development*, 62(2), 284-300. doi: 10.1111/j.1467-8624.1991.tb01531.x.
- Leary, M. R., Herbst, K. C., & McCrary, F. (2003). Finding pleasure in solitary activities: desire for aloneness or disinterest in social contact?. *Personality and Individual Differences*, 35(1), 59-68. doi: 10.1016/S0191-8869(02)00141-1.
- Lefkowitz, E. S. (2005). "Things Have Gotten Better" Developmental Changes Among Emerging Adults After the Transition to University. *Journal of Adolescent Research*, 20(1), 40-63. doi: 10.1177/0743558404271236

- Long, C. R., Seburn, M., Averill, J. R., & More, T. A. (2003). Solitude experiences: Varieties, settings, and individual differences. *Personality and Social Psychology Bulletin*, 29(5), 578-583. doi: 10.1177/0146167203029005003.
- Marcoen, A., Goossens, L., & Caes, P. (1987). Loneliness in pre-through late adolescence: exploring the contributions of a multidimensional approach. *Journal of Youth and Adolescence*, 16(6), 561-577. doi: 10.1007/BF02138821.
- Mounts, N. S., Valentiner, D. P., Anderson, K. L., & Boswell, M. K. (2006). Shyness, sociability, and parental support for the college transition: Relation to adolescents' adjustment. *Journal of Youth and Adolescence*, 35(1), 68-77. doi: 10.1007/s10964-005-9002-9.
- Muthén, B. (2004). Latent variable analysis. In D. Kaplan, (Ed.), *The Sage handbook of quantitative methodology for the social sciences*. Thousand Oaks, CA: Sage Publications.
- Muthén, L. K., & Muthén, B. O. (2012). *Mplus User's Guide*. Los Angeles, CA: Muthen & Muthen.
- Nelson, L. J. (2013). Going it alone: Comparing subtypes of withdrawal on indices of adjustment and maladjustment in emerging adulthood. *Social Development*, 22(3), 522-538. doi: 10.1111/j.1467-9507.2012.00671.x.
- Parker, J. D., Summerfeldt, L. J., Hogan, M. J., & Majeski, S. A. (2004). Emotional intelligence and academic success: Examining the transition from high school to university. *Personality and Individual Differences*, 36(1), 163-172. doi: 10.1016/S0191-8869(03)00076-X.

- Petersen, J. L., & Hyde, J. S. (2009). A longitudinal investigation of peer sexual harassment victimization in adolescence. *Journal of Adolescence*, 32(5), 1173-1188. doi: 10.1016/j.adolescence.2009.01.011.
- Richaud de Minzi, M. C. R. (2006). Loneliness and depression in middle and late childhood: The relationship to attachment and parental styles. *The Journal of Genetic Psychology*, 167(2), 189-210.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton Press.
- Rubin, K. H. (1982). Social and Social—Cognitive Developmental Characteristics of Young Isolate, Normal, and Sociable Children. In K.H. Rubin & H.S. Ross (Eds.), *Peer relationships and social skills in childhood* (pp. 353-374). Springer New York. doi: 10.1007/978-1-4613-8180-8_16.
- Rubin, K. H., Bukowski, W. M., & Bowker, J. C. (2015). In M.H. Bornstein, T. Leventhal, R.M. Lerner (Eds.), Children in peer groups. *Handbook of child psychology and developmental science*. New Jersey: Wiley. doi: 10.1002/9781118963418.childpsy405.
- Rubin, K. H., Coplan, R. J., & Bowker, J. C. (2009). Social withdrawal in childhood. *Annual Review of Psychology*, 60, 141.
- Rubin, D. B., & Little, R. J. (2002). *Statistical analysis with missing data*. Hoboken, NJ: J Wiley & Sons.
- Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological methods*, 7(2), 147. doi: 10.1037/1082-989X.7.2.147.
- Schmidt, L. A., & Fox, N. A. (1994). Patterns of cortical electrophysiology and autonomic activity in adults' shyness and sociability. *Biological Psychology*, 38(2), 183-198. doi: 10.1016/0301-0511(94)90038-8.

- Schmidt, L. A., & Fox, N. A. (1995). Individual differences in young adults' shyness and sociability: Personality and health correlates. *Personality and Individual Differences, 19*(4), 455-462. doi: 10.1016/0191-8869(95)00083-I.
- Schneider, B. H. (1999). A multimethod exploration of the friendships of children considered socially withdrawn by their school peers. *Journal of Abnormal Child Psychology, 27*(2), 115-123. doi: 10.1023/A:1021959430698.
- Scott, S. (2006). The medicalisation of shyness: from social misfits to social fitness. *Sociology of Health & Illness, 28*(2), 133-153. doi: 10.1111/j.1467-9566.2006.00485.x.
- Spangler, T., & Gazelle, H. (2009). Anxious solitude, unsociability, and peer exclusion in middle childhood: A multitrait-multimethod matrix. *Social Development, 18*(4), 833-856. doi: 10.1111/j.1467-9507.2008.00517.x.
- Steinley, D. (2003). Local optima in K-means clustering: what you don't know may hurt you. *Psychological Methods, 8*(3), 294. doi: 10.1037/1082-989X.8.3.294.
- Storch, E. A., Eisenberg, P. S., Roberti, J. W., & Barlas, M. E. (2003). Reliability and Validity of the Social Anxiety Scale for Children—Revised for Hispanic Children. *Hispanic Journal of Behavioral Sciences, 25*(3), 410-422. doi: 10.1177/0739986303256915.
- Tang, A., Santesso, D. L., Segalowitz, S. J., & Schmidt, L. A. (2016). Distinguishing shyness and sociability in children: An event-related potential study. *Journal of Experimental Child Psychology, 142*, 291-311. doi: 10.1016/j.jecp.2015.08.008.
- Teppers, E., Luyckx, K., Vanhalst, J., Klimstra, T., & Goossens, L. (2014). Attitudes Towards Aloneness During Adolescence: A Person-Centred Approach. *Infant and Child Development, 23*(3), 239-248. doi: 10.1002/icd.1856.

Vermunt, J. K., & Magidson, J. (2002). Latent class cluster analysis. In J.A Hagnaars & A.L. McCutcheon (Eds.), *Applied latent class analysis* (pp. 89-106). Cambridge University Press.

Wang, J. M., Rubin, K. H., Laursen, B., Booth-LaForce, C., & Rose-Krasnor, L. (2013). Preference-for-solitude and adjustment difficulties in early and late adolescence. *Journal of Clinical Child & Adolescent Psychology*, 42(6), 834-842. doi: 10.1080/15374416.2013.794700.

Chapter 4 (Study 3): Shyness and unsociability in organized sports: Different pathways to psychological engagement and activity outcomes in early childhood

A child's ability to be alone has been considered as a developmental milestone, reflecting cognitive and emotional maturation (Larson, 1997; Long & Avreill, 2003). However, concerns are raised when a child is consistently alone, because social interactions with peers and supportive adults are widely believed to be crucial for healthy socio-emotional development (Rubin, Bukowski, & Bowker, 2015).

Children who more frequently display solitary behaviors in the presence of familiar and unfamiliar peers, across situations and over time, are defined as socially withdrawn (Asendorpf, 1990). Social withdrawal is a broad umbrella term that reflects a behavioral tendency to be solitary in social situations. It has been linked to a myriad of negative outcomes, such as low self-esteem, internalizing problems, loneliness, depression and anxiety (Boivin, Hymel, & Bukowski, 1995; Gazelle & Ladd, 2003; Nelson, Rubin & Fox, 2005; Rubin, Coplan, & Bowker, 2009). However, theory and research suggest that there are several distinct subtypes of social withdrawal that differ in underlying motivations (Asendorpf, 1990; Coplan, Prakash, O'Neil, & Armer, 2004). Moreover, these subtypes are believed to have differential implications for socio-emotional development (Coplan & Armer, 2007).

The goal of the current study was to examine the potentially differential associations of shyness and unsociability, two central subtypes of social withdrawal, with organized sports activity participation and positive outcomes that may be derived from it. Specifically, I tested a structural equation model in which children's psychological engagement in organized sport mediated relations between shyness and unsociability and perceived positive activity outcomes. I focused on sport because it is the most prevalent out-of-school organized activity among children

and because it can offer unique developmental opportunities (Simpkins, Vest, Dawes, & Neuman, 2010, Hansen, Skorupski & Arrington, 2010).

Overview of Shyness and Unsociability in childhood

Shyness and unsociability share a similarity in the display of solitary behavior among peers, and the correlation between them has been reported as small to moderate (Coplan et al., 2004). However, the underlying motivations for the solitary behavior appear to differ (Asendorpf, 1990; Coplan et al., 2004). Shy children have been described as experiencing an approach-avoidance conflict (Asendorpf, 1990); although shy children desire to interact socially with others (i.e. approach), they are simultaneously inhibited by feelings of unease and anxiety (i.e. avoidance) in social situations (Coplan et al., 2004). Behaviorally, this conflict might be manifested in reticent or on-looking behaviors, in which children are on the margins of the social interaction and show interest in it, but do not participate.

Unsociable children, on the other hand, show an affinity for being alone and have relatively low interest in socializing with peers (Coplan et al., 2004; Spangler & Gazelle, 2009). For these children, being alone is a preference rather than an undesirable outcome of anxiety. By the same token, unsociable children do not fear social situations, might be receptive to social initiations made by others, and tend to be able to engage competently with peers when they choose to do so (Asendorpf & Meier, 1993; Coplan et al., 2004). Thus, unsociable children have low approach and low avoidance motivations that are not in conflict with each other (Asendorpf, 1990; Coplan & Armer, 2007).

Shyness and unsociability in childhood have been associated with differential patterns of socio-emotional adjustment (Coplan et al., 2004). Shy children have been found to have lower quality of peer relationships, lower perceived social competence, poorer academic performance,

and reported to suffer more from loneliness, negative emotionality and internalizing problems than do sociable and unsociable children (Coplan & Weeks, 2009; Karevold, Ystrøm, Coplan, Sanson & Mathiesen, 2012; Kingsbury, Coplan & Rose-Krasnor, 2013). These characteristics might put shy children at risk for maladjustment in important social contexts such as school and organized activities.

In contrast, unsociability has been described as relatively benign in early and middle childhood (Coplan et al., 2004; Coplan et al., 2013). Unsociable 6-8 year olds, for example, did not differ from their more sociable peers in internalizing problems, peer difficulties, loneliness, social satisfaction and school liking (Coplan & Weeks, 2010). Ladd, Kochenderfer, Eggum, Kochel, and McConnell (2011) studied 10-11 year olds and reported that unsociable children were comparable to non-withdrawn peers on measures of close friendship over the span of a school year. However, the authors have also reported that unsociable children were more likely to be excluded as compared to the sociable group. Similarly, young unsociable children were perceived as less appealing playmates and were less liked than were both shy and non-withdrawn children (Coplan, Girardi, Findlay & Frohlick, 2007). Despite these findings, it appears that unsociable children are not particularly distressed by their social stance (Coplan et al., 2013), an attitude that might explain findings supporting unsociability as a relatively benign form of social withdrawal. However, research findings also indicate that unsociable children may be at risk for some peer difficulties.

Studies on the heterogeneity of social withdrawal have considerably advanced our knowledge of the phenomenon, but little is known about the manifestation and implications of social withdrawal in different social contexts and in early childhood. Examining how shy and

unsociable children function in specific social settings, such as extracurricular activities, could contribute to a more complete ecological understanding of social withdrawal.

In the current study, I focused on the early childhood years. This age span is a developmentally sensitive period in which relationships with peers and social experiences continue to shape mental schemas and internal working models that become increasingly important to wellbeing and adjustment (Rubin et al., 2015). Thus, the period of early childhood may pose special challenges and stressors for socially withdrawn children (Coplan & Arbeau, 2009).

Organized sports participation and social withdrawal

Beginning in early childhood, organized sports activities have been reported as one of the most popular extracurricular pastimes in the United States and Canada, with 66% of elementary and middle school students who were enrolled in organized activities participated in sports (Simpkins et al., 2010). The positive association between organized sports participation and social and emotional well-being has been consistently reported (Kirkcaldy, Shephard, & Siefen, 2002; Rose-Krasnor, Busseri, Willoughby, & Chalmers, 2006). For example, youth participation in organized sports has been linked to perceived social competence, improved peer relations, and leadership skills (Fletcher, Nickerson, & Wright, 2003; Wright & Cote, 2003). Moreover, in North America, sports participation is highly culturally valued and tied to popularity and social status in childhood and adolescence (Eccles, Barber, Stone, & Hunt, 2003; Miller, 2012).

The social components of sports may have a key role in driving the positive outcomes of participation among children (Larson & Seepersad, 2003; Smith, 2003). For example, social acceptance and affiliation have been identified as motives for participation (Weiss & Ferrer-Caja, 2002). This emphasis on social motives raises the important question of how socially

withdrawn children would fare within organized sports and whether they would be able to reap the same benefits as do non-withdrawn children. Being shy or socially disinterested in a context that relies heavily on being sociable could pose challenges or create different experiences than those positive experiences generally reported for children in sports. However, very little empirical attention has been devoted to understanding the sport experiences of socially withdrawn children.

In one of the very few studies examining the experiences of shy children in sports, Findlay and Coplan (2008) reported that shy children in Grades 4 and 5 participated in sports less frequently than did non-withdrawn children. However, shy children who did participate reported higher self-esteem and lower social anxiety than did shy non-participating children, measured one year later. Miller (2012) also reported a lower sports participation frequency among shy children (8-10 years old), especially in sport activities with high social interdependence and interaction such as hockey. This was particularly true for shy boys, who were significantly less likely to participate in sports than were non-shy boys, whereas shy and non-shy girls tended to have similar sports participation frequencies.

Further, shy children have been reported to have lower perceived athletic competence (Hymel, Bowker & Woody, 1993) than their non-shy peers. These attributes, in conjunction with shy children's social anxiety, might explain their less frequent participation in sports. Such lower exposure to sport could have negative developmental implications, given that shy children might have more limited opportunities to engage in the potentially beneficial social interactions afforded by organized sports participation. Specific predictions regarding sport participation for unsociable children are less clear, however, than are those for their more sociable age mates.

Unsociable children might be less inclined than their peers to become involved in sports due to their relatively low social interest and preference for solitary activities. However, sport participation provides important physical and other non-social benefits (e.g., Hansen et al., 2010; Kirkcaldy, Shephard, & Siefen, 2002). Thus, unsociable children may be motivated by these non-social benefits to engage in sports more frequently than do shy children because they do not share the latter's social anxiety.

One of the major goals of the current study was to determine whether shyness and unsociability were associated with different patterns of sport participation. To our knowledge, this was the first study of children's sport participation that has included measures of both unsociability and shyness. It was also the first study of socially withdrawn children in sports that distinguished between behavioral and psychological engagement.

Dimensions of engagement in organized sports

Activity engagement has been conceptualized as comprising both behavioral and psychological engagement (e.g., Rose-Krasnor et al., 2009; Weiss, Little & Bouffard 2005). Behavioral engagement reflects physical attendance (e.g., frequency and duration of involvement). In contrast, psychological engagement captures the individual's subjective experiences (e.g., enjoyment, interest, commitment) in the activity. It is important to note that Findlay and Coplan (2008) and Miller (2012), cited above, measured only behavioral engagement in their study of shyness and sports. However, examining psychological engagement in addition to behavioral engagement could illuminate the subjective experiences of children during the activity itself, on top of providing information regarding the frequency of attendance.

Behavioral engagement in organized sports activities has several dimensions (Busseri & Rose-Krasnor, 2010; Fredricks & Eccles, 2006). Frequency or intensity of participation is measured by how often the child engages in the activity (e.g., times a week). Breadth measures the number of different types of activities in which the child is involved. Duration measures persistence of participation over time. These different aspects of behavioral engagement have been associated with unique implications for socio-emotional development. For instance, greater frequency of participation in adolescence predicted better interpersonal functioning and lower risk behavior a year later, independent of breadth of activities (Busseri et al., 2006). Longitudinal studies of adolescents have shown that consistent participation (i.e. duration), especially in high quality activities, predicted perceived social, educational and psychological competencies (Fredricks & Eccles, 2006; Mahoney, Cairns, & Framer, 2003; Zaff, Moore, Papillo, & Williams, 2003).

In contrast to behavioral engagement, psychological engagement reflects the individual's subjective experiences in the activity (Ramey, Lawford, & Rose-Krasnor, 2016; Rose-Krasnor, 2009). Examples of subjective aspects of psychological engagement include interest, joy, commitment, intrinsic motivation and enthusiasm. Psychological engagement also shares characteristics with constructs such as "flow" (Jackson & Csikszentmihalyi, 1999) and "passion" (Vallerand, 2008). Psychological engagement has been recognized as an important dimension of activity involvement that may lead to positive development (Rose-Krasnor, 2009; Vandell et al., 2005). For example, Weiss et al., (2005) showed that organized sports participation is related to positive outcomes through cognitive and social involvement, rather than through "just being there". Similarly, Vandell et al., (2005) pointed to the importance of enjoyment and interest in an activity in order to achieve developmental benefits. Further, Larson (2000) suggested that the

elements that make organized sports activities particularly beneficial for positive youth development are a combination of high psychological engagement and concentration, which are not typically offered by other activities such as schoolwork and unstructured time with peers.

Psychological engagement is measured in the current study by enjoyment, interest and importance of the activity for young children. Psychological engagement promotes the experience of meaning and belonging and can be particularly important for activities such as sports, which demand practice, concentration and teamwork (Deci & Ryan, 2000). Further, psychological engagement is promoted by social interactions within activities (Standage, Duda, & Ntoumanis, 2003). For example, Shernoff et al., (2007) showed that middle school children were motivated to participate in sports predominantly due to its social structure, which allowed interactions with peers and adults. Fredricks et al., (2002) found that enjoyment, which stemmed from interaction with new and familiar friends, was the main motivator for children to be continuously involved in athletics.

To conclude, it seems that the aspects of enjoyment, interest and importance are markers of psychological engagement in organized sports and that social interactions with peers have a central role in shaping these experiences. However, psychological engagement remains understudied, especially in conjunction with measures of behavioral engagement and in the context of individual differences in shyness and unsociability.

Shy children's tendency toward anxiety and fear of negative evaluation in social situations might interfere with their ability to experience enjoyment, interest and importance while participating in sports. Thus, shy children might encounter barriers to psychological engagement, which then could make it less likely for them to benefit from the activity. However, the social context of sports is not expected to be as anxiety provoking for unsociable children as

it would be for shy children. Therefore, unsociability might not be a barrier for psychological engagement in sports because unsociable children could experience feelings of interest, enjoyment and importance due to aspects of sport that are not primarily social in nature (e.g., being physically active). If unsociable children are as psychologically engaged in sports as their non-withdrawn peers, then their unsociability should not negatively impact perceived positive activity outcomes.

The current study

The current study was designed to examine possible associations between shyness, unsociability, psychological engagement in sports and perceived positive activity outcomes (independent of behavioral engagement, gender and age). The conceptual model is displayed in Figure 4-1. In a Structural Equation Model (SEM) I tested the direct paths from shyness and unsociability to psychological engagement and perceived positive activity outcomes (Behavioral engagement, gender and age were entered as covariates). Additionally, I explored the indirect paths from shyness and unsociability to outcomes via psychological engagement.

My first hypothesis was that shyness, but not unsociability, would have a negative direct effect on psychological engagement in sports. My second hypothesis was that shyness, but not unsociability, would have a negative direct effect on perceived positive activity outcomes. My third hypothesis was that shyness, but not unsociability, would have a negative indirect effect on perceived positive activity outcomes via psychological engagement. I controlled for gender effects based on previous findings reporting that shy boys tended to participate in sports less than shy girls (Miller, 2012) and that shyness had more links to socio-emotional maladjustment among shy boys than among shy girls (Doey, Coplan & Kingsbury, 2014).

Method

Participants and Procedure

Participants were the parents of 563 children (273 boys, $M_{age} = 5.6$ yrs., $SD = .99$, $R = 3-7.8$ yrs.), recruited from public elementary schools in South-Central Ontario. Ethics clearance from the universities and the two school boards involved were obtained prior to data collection. Data were collected over a period of two consecutive years between the months of January and June, in two locations (with a mix of urban, suburban, and rural communities). As part of a larger study of children's social activities, parents completed two sets of parental questionnaires. The first set of parent questionnaires was sent home with the children and included a consent form, and questionnaires assessing children's social withdrawal and behavioral activity participation patterns. Parents who wished to participate returned the first questionnaire packages in a sealed envelope to the school, which was collected by research assistants. Parents could choose to complete the second questionnaire package online or use the method described above. The second questionnaire contained measures assessing psychological engagement in sports and perceived positive activity outcomes (as well as other variables not included in the current study).

Parental reports indicated that 16.4% of the mothers had a high school diploma or equivalent, 37.3% had a degree from community college, 25.6% had a university degree and 15.3% completed graduate school. Ethnicity data were not collected as directed by school board policy.

Measures

Shyness and unsociability. Parents completed the Child Social Preference Scale (CSPS; Coplan et al., 2004), a parent-rated measure designed to distinguish between shyness and

unsociability in young children. The CSPS has previously been used as an assessment of shyness and unsociability in children (Arbeau, Coplan, & Weeks, 2010; Coplan & Armer, 2007, Coplan et al., 2004). It has demonstrated good psychometric properties, including construct validity and good internal consistency (Coplan et al., 2004).

The CSPS comprises seven items assessing shyness (e.g., “My child seems to want to play with other children, but is sometimes nervous to”) and four items assessing unsociability (e.g., “My child often seems content to play alone”). Parents were asked to rate the degree to which each statement described their child on a five-point Likert scale (1 = not at all, 5 = a lot). Cronbach’s alpha for the shyness ($\alpha = .87$) and unsociability ($\alpha = .71$) subscales were acceptable to good in the current sample. The seven items comprising the shyness scale were used as indicators of a latent variable termed *Shyness* and the four items comprising the unsociability scale were used as indicators of a latent variable termed *Unsociability* (see Results section for indicator loadings on the latent factors).

Sport engagement. Both behavioral and psychological components of engagement were measured (e.g., Ramey, Rose-Krasnor, Busseri, Gadbois, Bowker, & Findlay, 2015). To assess *behavioral engagement in sports*, parents were asked to list organized sports activities (e.g., hockey, swimming) in which their child was enrolled and rate the frequency of their participation (“How often does your child do this type of activity?”) on a five-point Likert scale ranging from 1 (not at all) to 5 (several times a week). This measure was previously used by Busseri and Rose-Krasnor (2008) and Ramey et al., (2010) as a self-report measure of frequency of participation and was modified here for parental report.

To assess *psychological engagement in sports*, parents were asked to assess their child’s experience in organized sports activities along dimensions of enjoyment (“How much fun is this

activity for your child?”), personal importance (“How important is this activity for your child?”) and interest (“How interesting is this activity for your child?”), on a five-point Likert scale ranging from 0 (not at all) to 4 (very much) (see Busseri et al., 2008; Ramey et al., 2015). These items were used as indicators of a latent factor termed *psychological engagement* (see Results section for indicator loadings on the latent factor).

Perceived positive activity outcomes. Based on previous research on potential outcomes of children’s engagement in organized activities (see reviews by Feldman & Matjasko, 2005 and Fredricks & Eccles, 2006), 16 statements that assess the contribution of activity participation to improvements in competence, responsibility and social difficulties were created. The instructions were “Please think about your child’s activities (e.g., sports, arts, playgroups, hobbies). Overall, how much do you think your child’s activity participation is helping him or her develop each of the following?” Ratings were made using a 5-point Likert scale, ranging from 1 (not at all) to 5 (very much).

I performed an exploratory principal component analysis with an oblique rotation (promax) using SPSS 20 software to investigate whether the items captured several dimensions of activity outcomes (See Table 4-1). The scree plot suggested three main components, each with eigenvalues greater than 1, which in total explained 63.5% of the item variance. The first component, labeled *responsibility*, included 7 items with loadings ranging from .53 to .95. Example items are “discipline and responsibility” and “commitment and follow-through”. The second component, labeled *competence*, included 7 items with loadings ranging from .47 to .94. Example items are “ability to adapt to different environments and people” and “self-esteem, self-confidence, and self-awareness”. The third component, labeled *overcoming social difficulties*, included 3 items with loadings ranging from .76 to .88. Items are “reducing aggression”,

“keeping out of trouble” and “overcoming shyness or social anxiety”. No cross-loading items were indicated. Composite indices for each component were computed by averaging ratings of items loading strongly on each component. Good reliability was obtained for each sub-scale ($\alpha = .86, .86$ and $.80$, respectively). The composite sub-scales were then used as indicators of a latent factor labeled perceived *positive activity outcomes* (see Results section for indicator loadings on the latent factor).

Results

Preliminary Analyses

Means, standard deviations and implied correlations of the study variables are displayed in Table 4-2. All implied zero-order correlations were in the expected direction. Of children who participated in organized activities, 78% of children participated in organized sports. As predicted, shyness, but not unsociability, was significantly and negatively associated with perceived positive activity outcomes. Psychological engagement was significantly and negatively associated with shyness, but not with unsociability, and significantly and positively associated with perceived positive activity outcomes. Additionally, frequency of participation was significantly negatively associated with unsociability. These associations highlighted the importance of controlling for behavioral engagement in the current model. Shyness and unsociability were significantly and positively correlated at $r = .26$ ($p < .001$), a medium to low size correlation that is in line with previous research (Coplan et al., 2004).

Maternal education, gender and age were not associated with any of the study variables. Since age and gender effects have been documented in the literature on shyness, I controlled for these demographic variables in the Structural Equation Model. No outliers or indicators of non-normality were identified through data screening.

Data analysis was performed only on questionnaires completed by participants who had completed both questionnaire sets. No significant differences in demographic and study variables were found between parents who answered only the first set of questionnaires to those who completed both. Based on this result, I assumed that the data were missing at random and thus continued to impute missing data (6%) using the Expectation Maximization (EM) algorithm in SPSS. EM has been demonstrated as superior to other common methods of missing data estimation, such as pairwise and listwise deletion or mean substitution (Enders, 2001; Schafer & Graham, 2002).

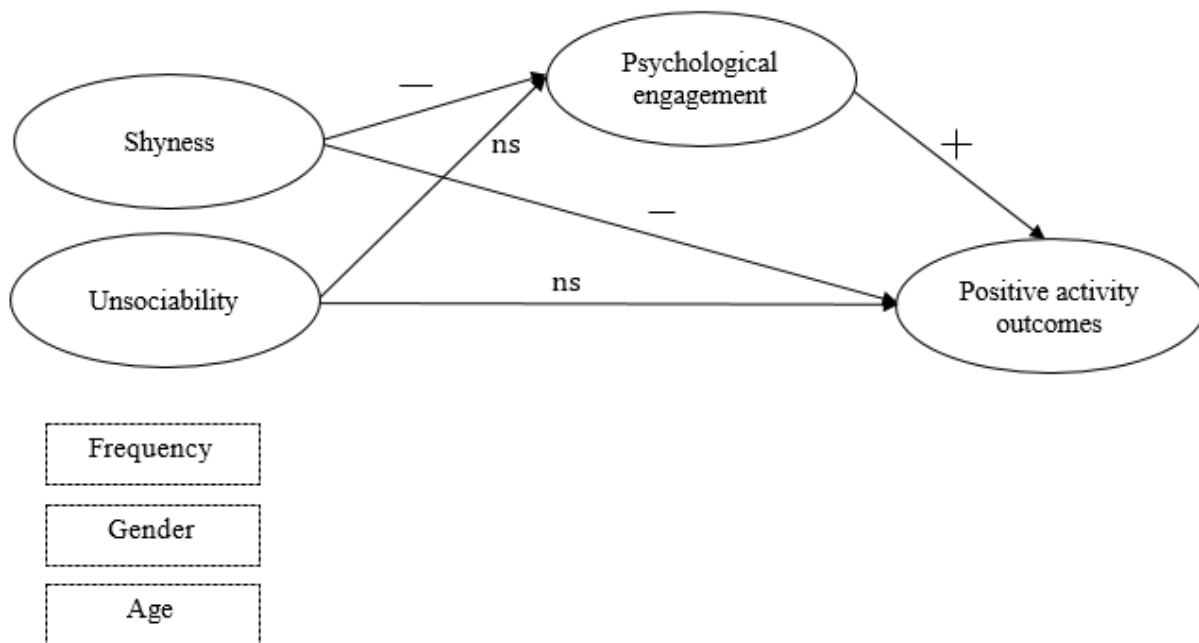
Analyses of direct and indirect effects

Structural equation modeling was used to test a model in which shyness and unsociability are associated with perceived positive activity outcomes of organized sports through psychological engagement in the activity. The model was tested in AMOS 20 (Arbuckle, 1999) using 500 bootstraps with 95% confidence intervals. Shyness and unsociability were entered in the model as latent variables, using the CSPA items as indicators (see Figure 4-2). The loadings of the indicators of the latent variable *Shyness* ranged between .63 and .73 and were statistically significant at $p < 0.001$. The loadings of the indicators of the latent variable *Unsociability* ranged between .72 and .82 and were statistically significant at $p < 0.001$. Behavioral engagement (i.e. frequency), as well as gender and age, were each assessed by one item and entered in the model as manifest variables. Psychological engagement in sports was modeled as a latent variable with three items used as indicators. The items were: “How much fun is this activity for your child?”, “How interesting is this activity for your child” and “How important is this activity for your child?”. The use of single items as indicators is a common and well-practiced method of representing latent variables (Little, Cunningham, Shahar, & Widaman, 2002). The loadings of

the indicators ranged between .85 and .95 and were statistically significant at $p < 0.004$. The variable of perceived positive activity outcomes was also represented as a latent variable, in which the three indicators were the scale means of the *responsibility*, *competence* and *overcoming difficulties* factors. Indicator loadings ranged from .61 to .85, $p < .004$.

The model provided good fit to the data; $\chi^2_{(147)} = 253$, $p = .000$, CFI = .95, RMSEA = .05; CI: $.04 \leq \text{RMSEA} \leq .06$. Examination of specific paths revealed that only shyness had a significant negative direct effect on psychological engagement. Further, only shyness had a significant negative total effect on perceived positive activity outcomes. The negative indirect effect from shyness to positive activity outcomes through psychological engagement in sports was also significant and accounted for 9.2% of the path variance. Thus, the negative association between shyness and perceived positive activity outcomes was partially accounted for by psychological engagement in sports. No other indirect paths were significant.

Figure 4-1. A conceptual model in which shyness, unsociability, frequency of sports participation, gender and age are associated with perceived positive activity outcomes, through psychological engagement.



Note. Frequency of sports participation, gender and age are covariates presented in a dashed line.

Table 4-1. *Principal component analysis of perceived positive activity outcomes measure.*

	Factor 1 Responsibility	Factor 2 Competence	Factor 3 Overcoming Social Difficulties
1. Personal or family values	.535		
2. Discipline and responsibility	.615		
3. Commitment and follow-through	.539		
4. Respect for others	.820		
5. Teamwork and fair play	.639		
6. Helping behaviors and community service	.946		
7. Academic skills	.729		
8. Self-esteem, self-confidence, and self-awareness		.467	
9. Social skills		.619	
10. Ability to adapt to different environments and people		.601	
11. Having fun		.908	
12. Physical and motor skills		.938	
13. Identifying your child's talents and passions		.656	
14. Keeping out of trouble			.879
15. Overcoming shyness or social anxiety			.775
16. Reducing aggression			.858

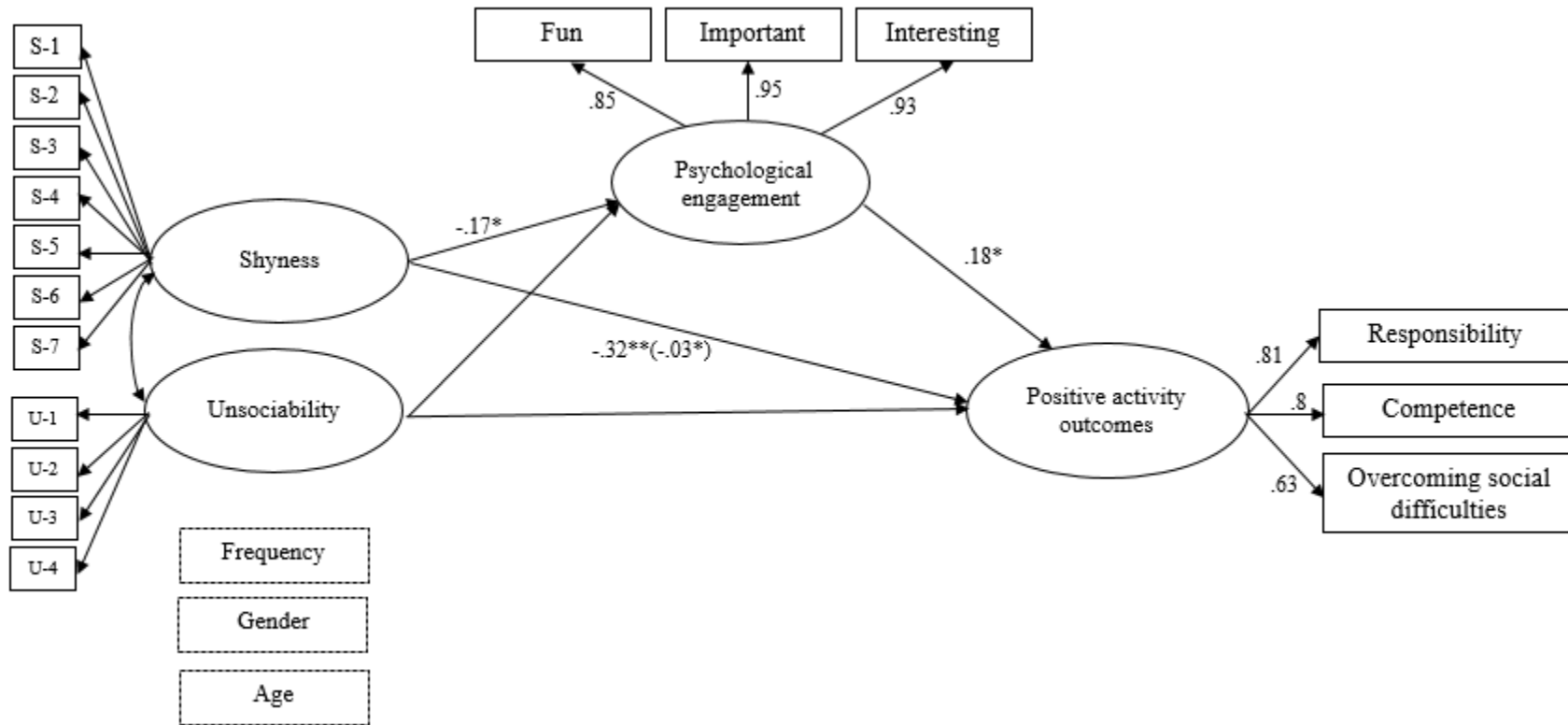
Note. Promax rotation; only loadings above .3 are shown.

Table 4-2. Means, standard deviations and implied zero-order correlations of the study variables.

	1	2	3	4	5	6	7
M(SD)	.54(.5)	5.64(0.95)	3.61(.71)	2.32(.87)	4.31(.95)	2.56(.8)	1.9(.87)
1. Shyness	1						
2. Unsociability	.33**	1					
3. Frequency	-.04	-.14*	1				
4. Psychological engagement	-.21**	-.13	-.06	1			
5. Activity outcomes	-.28**	-.09	-.01	.23**	1		
6. Age (years)	-.08	-.1	.03	.03	-.02	1	
7. Gender	.04	-.03	-.004	-.11	-.06	.01	1

Note. Frequency= frequency of sports participation; Psychological engagement= psychological engagement in sports; Activity outcome = perceived positive activity outcomes;
Gender, boys = 0, girls=1.
 $p^* < .05$ $p^{**} < .01$

Figure 4-2. An SEM model in which shyness and unsociability are associated with perceived positive activity outcomes through psychological engagement in the activity.



$\chi^2_{(147)} = 253, p = .000, CFI = .95, RMSEA = .05; CI: .04 \leq RMSEA \leq .06.$

$*p < .05, ***p < .001$

Note. Only significant paths are shown. Indirect effect presented in parentheses. S 1-7: Shyness CSPA items used as indicators; U 1-4: Unsociability CSPA items used as indicators.

Table 4-3. All total, direct and indirect paths between the study variables.

		Shyness	Unsociability	Gender	Age	Frequency	Psychological engagement
Psychological engagement	Total effect	-.169*	-.045	-.102	.013	-.082	-
	Direct effect	-.169*	-.045	-.102	.013	-.082	-
	Indirect effect	-	-	-	-	-	-
Positive activity outcomes	Total effect	-.323**	.054	-.06	-.036	-.035	.175*
	Direct effect	-.293*	.062	-.042	-.038	-.021	.175*
	Indirect effect	-.03*	-.008	-.018	.002	-.014	-

Note. Values are standardized.

$p^* < .05$ $p^{**} < .01$

Discussion

The goal of the present study was to investigate potential differential associations of shyness and unsociability with psychological engagement in sports and parents' perceived activity participation outcomes in middle childhood. To my knowledge, this was the first study to explore shyness and unsociability together in the context of sports participation in a young age group, and with attention to the different dimensions of activity participation. As predicted, shyness, but not unsociability, was negatively associated with psychological engagement in sports, after controlling for gender, age and behavioral engagement. Further in accordance with hypotheses, shyness, but not unsociability, was negatively associated with perceived positive activity outcomes. This effect was partially explained by the negative association between shyness and psychological engagement.

Shyness and unsociability have been previously conceptualized as distinct subtypes of social withdrawal with different underlying motivations and different consequences for emotional and social adjustment (Asendorpf, 1990; Coplan & Armer, 2007). The majority of studies addressing this issue have found that unsociability, relative to shyness, is a benign form of social withdrawal in middle childhood. The current finding that shyness, but not unsociability, is perceived by parents as negatively related to positive activity outcomes, extend these results by its generalization to a previously untested context. Possible mechanisms that could explain this difference are the underlying approach-avoidance tendencies of shyness and unsociability, how they relate to motivations to engage in sports, and the relative opportunities for positive outcomes afforded by sports.

Shyness and sports participation

Shy children have been depicted in the research literature as struggling with an approach-avoidance conflict, such that they want to interact socially with others but also experience anxiety and fear of negative evaluation in social contexts. The negative emotional arousal characteristic of shy children in social situations might lead to avoidance of organized sports, as is evident by reported lower behavioral engagement (e.g., attendance) in shy children (Findlay & Coplan, 2008). However, even those shy children who do participate in sport are likely to approach it with an initial level of wariness, especially when they are new to the group. This mental and emotional state might influence not only behavioral engagement but also psychological engagement.

An integral part of psychological engagement is intrinsic motivation, which reflects a volitional choice to participate in an activity and flourishes under conditions of optimal challenge and interest (Deci & Ryan, 2000). Sports can provide such optimal conditions because they require some degree of physical ability, concentration, and cooperation (Standage et al., 2003). These aspects of sports have an emotional and physical load that likely will be manageable for a sociable child but may be overwhelming for a shy child. Further, given that there is a commonly found inverse-U relationship between stress and performance (Westman & Eden, 1996) and since shy children are more likely to enter a sports activity with heightened stress than are less shy children, shy children's optimal zone of performance might be relatively narrow. Their limited mental resources may need to be invested in basic functioning within the sport activity, which would make psychological engagement less likely to occur compared to children who are not shy. This dynamic could help explain the negative association I found between shyness and

psychological engagement in sports, which accounted for part of the negative indirect effect from shyness to perceived positive activity outcomes.

However, the majority of the effect of shyness on perceived positive activity outcomes was not accounted for by psychological engagement. The innate characteristics of shyness might help explain the remaining negative association between shyness and perceived positive activity outcomes. Shy children are less likely to initiate social contact and tend to display behavioral reticence compared to their less shy peers (Coplan et al., 2004). If shy children spend even some of the time during the activity being withdrawn from the group, they will subsequently have fewer opportunities to interact with others and develop self-esteem, confidence, and ability to adapt to new environments (measured by the *competence* outcome factor). Additionally, if they are not part of the group, they are less likely to improve in teamwork, fair play and accountability (the *responsibility* outcome factor). Further, being withdrawn within the sport activity is not likely to help the child overcome social anxiety and might even perpetuate dysfunctional mental schemas related to shyness (the *overcoming social difficulties* outcome factor).

Unsociability and sports participation

Unsociable children, on the other hand, do not seem to be negatively impacted in the organized sports environment with respect to the investigated variables. On average, they are not likely to experience elevated levels of stress in the sports context because they tend to not perceive social situations as particularly anxiety provoking. In previous studies, social disinterest was not associated with diminished social competence (Coplan et al., 2004). Thus, unsociable children could potentially participate in the activity as fully as would sociable children, if so desired. Beyond opportunities for social interaction, unsociable children might find other aspects

of sports to be motivating and promoting psychological engagement. Since unsociable children have been described as more object-oriented than people-oriented (Coplan & Armer, 2007), they might find interest and enjoyment in aspects of sports such as rules, strategy, and history. Thus, the basic conditions for psychological engagement in sports are likely to be present for unsociable children, in spite of their low social interest.

Psychological engagement is considered to be a driving force for the developmental benefits of activity participation, above and beyond behavioral engagement. Merely attending the activity without being intrinsically motivated is not likely to promote positive socio-emotional outcomes (Sharp, Caldwell, Graham, & Ridenour, 2006). Activities in which children experience interest and meaning have been found to contribute to self-exploration, learning and growth. Because unsociability does not seem to be a barrier to psychological engagement, it is also less likely to negatively impact activity outcomes compared to shyness.

Indeed, as the current results indicate, unsociability does not seem to interfere with perceived positive activity outcomes as reported by parents, even those that are social in nature. As in the general peer context, unsociable children may be less likely to actively seek out their peers in the sports context; however, they also may be capable of competently engaging in regular components of most sport activities such as team work, cooperation and communication. Moreover, in terms of the curvilinear relationship between stress and performance (Westman & Eden, 1996), unsociable children might be in an adaptive performance zone. A moderate level of stress would allow these children to function well under the social and physical demands characteristic of sports, which could subsequently translate into the perceived positive benefits reported here by parents.

Conclusions, caveats, and future directions

The majority of the children in North America participate in after-school organized sports, a context that has been continually reported as promoting positive development (Eccles et al., 2003). In the current study, I have shown that it is important to consider individual differences in shyness and unsociability when considering the potential benefits of such activities. Additionally, the results highlight the importance of including both behavioral and psychological measures of sports engagement in studies on the topic. Another contribution of the current study is its focus on middle childhood, an age group that has been understudied in the social withdrawal and activity participation literatures.

The current study relied on parental reports, which have strengths as well as limitations. Parental reports of social preferences have been shown to reliably distinguish between shyness and unsociability and have been significantly correlated with other measures of social preferences in childhood (Coplan et al., 2004). Additionally, parents are expected to be the best informants of sports engagement among young children, as they may be the most appropriate assessors of their child's internal states (e.g., psychological engagement) at this age (Coplan, Ooi, & Nocita, 2015), given young children's limitations in reporting their own thoughts and feelings. In addition, parents are usually responsible for children's enrollment in sports and arrangements for attendance (i.e. behavioral engagement). Lastly, parents are in a unique position to evaluate outcomes of activities such as responsibility and competence, which are likely to be expressed in daily life. I considered parental reports as an appropriate measure of perceived activity outcomes in the current study given the young age of the children in this sample and the ability of parents to evaluate the contribution of the sport activity to the outcomes, based on knowledge of the child's functioning prior to joining the activity. Future

research, however, should include multiple informants (e.g., parents, children, teachers, coaches, and peers) and observational methods.

The cross-sectional design of the current study allows me to discuss the results in correlational terms only. For instance, based on theory and previous studies, I proposed that shyness may lead to lower psychological engagement and lower perceived benefits from sport. However, it is also possible that parents' ratings of their children's shyness were themselves influenced by the parents' perception of how much their child benefited from sports and the extent to which the children were engaged in the activity. It is also possible the activity benefits led to more psychological engagement, which in turn led to reduced shyness. In spite of my inability to determine causal direction, this is the first examination of shyness and unsociability in the sports context and, as such, provides an important basis for future longitudinal studies.

A longitudinal approach is especially important in the case of unsociability because concurrent studies, including this study, have mostly reported it as a benign form of social withdrawal in middle childhood. However, unsociability also has been reported as a risk factor for peer exclusion in several studies (Coplan et al., 2007; Gazelle & Ladd, 2003). Peer exclusion is tied to social maladjustment and might negatively affect the developmental course of unsociable children (Gazelle & Rudolph, 2004). Thus, further research is needed in order to determine whether unsociable tendencies at a young age could have costs later in development. Additionally, unsociable children might also be increasingly vulnerable within sport activities. As these children grow older, their potential reliance on nonsocial sources of interest and meaning in sports might diverge from those of their peers and become more salient. This is in line with peers' perception of unsociability as being more deviant in adolescence than in childhood (Spangler & Gazelle, 2009). Another level of complexity is added when considering

the changing role of sports in the social lives of children. As children grow older, the social role of sports becomes increasingly tied to popularity and status (Eccles et al., 2003). However, when children enter adolescence, they also report more boredom in extracurricular activities (Hunter & Csikszentmihalyi, 2003), and boredom is considered to be the opposite of psychological engagement (Caldwell et al., 2004). Rigorous longitudinal investigation should take these factors into account.

It is also important to note that my measures of behavioral and psychological engagement in sports did not differentiate among specific sports or categories of sports (e.g., competitive vs. noncompetitive, team vs. individual). Shy and unsociable children may experience specific sports activities differently and benefit differentially from them. For instance, shy children might do better in sports that are played in small groups or pairs (e.g., tennis, martial arts) while unsociable children might benefit from more individualistic sports (e.g., swimming, gymnastics). I also did not investigate engagement in non-sport activities, which may afford varying developmental opportunities for children. For example, shy children may receive more benefits from activities that do not involve public performance and competition (e.g., art clubs) than activities, such as competitive sports or music groups, which require auditions and concerts.

Combining research on specific types of activities with a longitudinal design could allow investigation of the potentially protective role of sports for socially withdrawn children. My findings indicate that shyness could predispose children to have less optimal outcomes of sport participation. However, findings from one of the only longitudinal studies of shy children in sport show that sport participation led to a reduction in social anxiety (Findlay & Coplan, 2008). Thus, it is important to know more about the specific conditions under which certain aspects of an activity setting could assist shy children in overcoming their social difficulties. For unsociable

children, perhaps a specific sport or other activity could help in developing social awareness and assist in minimizing the possibility of future peer exclusion.

In summary, the current study is a part of a growing body of literature investigating subtypes of social withdrawal in different life stages and settings. Advancing our knowledge of these processes could support parents, coaches, and educators in their attempts to provide young socially withdrawn children with quality experiences in activities and optimal contexts for development

References

- Arbeau, K. A., Coplan, R. J., & Weeks, M. (2010). Shyness, teacher–child relationships, and socio-emotional adjustment in grade 1. *International Journal of Behavioral Development*, 34, 259-269. doi: 10.1177/0165025409350959.
- Arbuckle, J. L. (1999). AMOS 4.0 [Computer software]. Chicago, IL: Smallwaters corporation.
- Asendorpf, J. B. (1990). Beyond social withdrawal: Shyness, unsociability, and peer avoidance. *Human Development*, 33(4-5), 250-259. doi: 10.1159/000276522.
- Asendorpf, J. B., & Meier, G. H. (1993). Personality effects on children's speech in everyday life: Sociability-mediated exposure and shyness-mediated reactivity to social situations. *Journal of Personality and Social Psychology*, 64(6), 1072-1083. doi: 10.1037//0022-3514.64.6.1072.
- Asendorpf, J., & Rubin, K. H. (1993). *Social withdrawal, inhibition, and shyness in childhood*. Hillsdale, NJ: L. Erlbaum Associates.
- Boivin, M., Hymel, S., & Bukowski, W. M. (1995). The roles of social withdrawal, peer rejection, and victimization by peers in predicting loneliness and depressed mood in childhood. *Development and Psychopathology*, 7(4), 765-785. doi: 10.1017/S0954579400006830.
- Booth-LaForce, C., & Oxford, M. L. (2008). Trajectories of social withdrawal from grades 1 to 6: Prediction from early parenting, attachment, and temperament. *Developmental Psychology*, 44(5), 1298-1313. doi: 10.1037/a0012954.
- Busseri, M. A., & Rose-Krasnor, L. (2010). Addressing three common issues in research on

- youth activities: An integrative approach for operationalizing and analyzing involvement. *Journal of Research on Adolescence*, 20(3), 583-615. doi: 10.1111/j.1532-7795.2010.00652.
- Busseri, M. A., Rose-Krasnor, L., Willoughby, T., & Chalmers, H. (2006). A longitudinal examination of breadth and intensity of youth activity involvement and successful development. *Developmental Psychology*, 42(6), 1313-1326. doi: 10.1037/0012-1649.42.6.1313.
- Caldwell, L. L., Baldwin, C. K., Walls, T., & Smith, E. (2004). Preliminary effects of a leisure education program to promote healthy use of free time among middle school adolescents. *Journal of Leisure Research*, 36(3), 310-335. doi: 20043169243.
- Coplan, R.J & Arbeau, K. (2009). Peer interactions and play in early childhood. In K.H. Rubin, W. Bukowski, & B. Laursen (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 143-161). New York: Guilford. ISBN: 978-1-59385-441-6.
- Coplan, R. J., & Armer, M. (2007). A "multitude" of solitude: A closer look at social withdrawal and nonsocial play in early childhood. *Child Development Perspectives*, 1(1), 26-32. doi: 0.1111/j.1750-8606.2007.00006.x.
- Coplan, R. J., Prakash, K., O'Neil, K., & Armer, M. (2004). Do you "want" to play? Distinguishing between conflicted shyness and social disinterest in early childhood. *Developmental Psychology*, 40(2), 244-258. doi: 10.1037/0012-1649.40.2.244.
- Coplan, R. J., Rose-Krasnor, L., Weeks, M., Kingsbury, A., Kingsbury, M., & Bullock, A.

- (2013). Alone is a crowd: Social motivations, social withdrawal, and socioemotional functioning in later childhood. *Developmental Psychology*, 49(5), 861-875. doi: 10.1037/a0028861.
- Coplan, R. J., & Weeks, M. (2009). Shy and soft-spoken: shyness, pragmatic language, and socio-emotional adjustment in early childhood. *Infant and Child Development*, 18(3), 238-254. doi: 10.1002/icd.622.
- Coplan, R. J., & Weeks, M. (2010). Unsociability in middle childhood: Conceptualization, assessment, and associations with socioemotional functioning. *Merrill-Palmer Quarterly*, 56(2), 105-130.
- Coplan, R. J., Ooi, L. L., & Nocita, G. (2015). When one is company and two is a crowd: Why some children prefer solitude. *Child Development Perspectives*, 9(3), 133-137. doi: 10.1111/cdep.12131.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227-268. doi: 10.1207/s15327965PLI1104_01.
- Doey, L., Coplan, R.J., & Kingsbury, M. (2014). Bashful boys and coy girls: A review of gender differences in childhood shyness. *Sex Roles*, 70, 255-266. doi: 10.1007/s11199-013-0317-9.
- Eccles, J. S., Barber, B. L., Stone, M., & Hunt, J. (2003). Extracurricular activities and adolescent development. *Journal of Social Issues*, 59(4), 865-889. doi: 10.1046/j.0022-4537.2003.00095.x.
- Enders, C. K. (2001). The performance of the full information maximum likelihood estimator in

- multiple regression models with missing data. *Educational and Psychological Measurement*, 61(5), 713-740. doi: 10.1177/0013164401615001.
- Feldman, A. F., & Matjasko, J. L. (2005). The role of school-based extracurricular activities in adolescent development: A comprehensive review and future directions. *Review of Educational Research*, 75(2), 159-210. doi: 10.3102/00346543075002159.
- Findlay, L. C., & Coplan, R. J. (2008). Come out and play: Shyness in childhood and the benefits of organized sports participation. *Canadian Journal of Behavioural Science/Revue Canadienne des Sciences du Comportement*, 40(3), 153-161. doi: <http://dx.doi.org/10.1037/0008-400X.40.3.153>.
- Fletcher, A. C., Nickerson, P., & Wright, K. L. (2003). Structured leisure activities in middle childhood: Links to well-being. *Journal of Community Psychology*, 31(6), 641-659. doi: 10.1002/jcop.10075.
- Fredricks, J. A., & Eccles, J. S. (2006). Is extracurricular participation associated with beneficial outcomes? Concurrent and longitudinal relations. *Developmental Psychology*, 42(4), 698-713. doi: 10.1037/0012-1649.42.4.698.
- Fredricks, J. A., Alfeld-Liro, C. J., Hruda, L. Z., Eccles, J. S., Patrick, H., & Ryan, A. M. (2002). A qualitative exploration of adolescents' commitment to athletics and the arts. *Journal of Adolescent Research*, 17(1), 68-97. doi: 10.1177/0743558402171004.
- Gazelle, H., & Ladd, G. W. (2003). Anxious solitude and peer exclusion: A diathesis-stress model of internalizing trajectories in childhood. *Child Development*, 74(1), 257-278. doi: 10.1111/1467-8624.00534.
- Gazelle, H., & Rudolph, K. D. (2004). Moving toward and away from the world: Social

- approach and avoidance trajectories in anxious solitary youth. *Child Development*, 75(3), 829-849. doi: 10.1111/j.1467-8624.2004.00709.x.
- Hansen, D. M., Skorupski, W. P., & Arrington, T. L. (2010). Differences in developmental experiences for commonly used categories of organized youth activities. *Journal of Applied Developmental Psychology*, 31(6), 413-421. doi: 10.1016/j.appdev.2010.07.001.
- Hunter, J. P., & Csikszentmihalyi, M. (2003). The positive psychology of interested adolescents. *Journal of Youth and Adolescence*, 32(1), 27-35. Doi: 10.1023/A:1021028306392.
- Hymel, S., Woody, E., & Bowker, A. (1993). Social withdrawal in childhood: Considering the child's perspective. *Social withdrawal, Inhibition, and Shyness in Childhood*, 237-264. ISBN: 0-8058-1220-2.
- Jackson, S. A., & Csikszentmihalyi, M. (1999). *Flow in sports*. Human Kinetics. ISBN: 0-88011-876-5-8.
- Kingsbury, M., Coplan, R.J., Rose-Krasnor, L. (2013). Shy but getting by? An examination of the complex links between shyness, coping, and socio-emotional functioning in childhood. *Social Development*, 22, 126-145. doi: 10.1111/sode.12003.
- Kirkcaldy, B. D., Shephard, R. J., & Siefen, R. G. (2002). The relationship between physical activity and self-image and problem behaviour among adolescents. *Social Psychiatry and Psychiatric Epidemiology*, 37(11), 544-550. doi: 10.1007/s00127-002-0554-7.
- Ladd, G. W., Kochenderfer-Ladd, B., Eggum, N. D., Kochel, K. P., McConnell, E. M. (2011). Characterizing and comparing the friendships of anxious-aolitary and unsociable preadolescents. *Child Development*, 82(5), 1434-1453. doi: 10.1111/j.1467-8624.2011.01632.x.

- Larson, R. W. (1997). The emergence of solitude as a constructive domain of experience in early adolescence. *Child Development*, 68(1), 80-93. doi: 10.2307/1131927.
- Larson, R. W. (2000). Toward a psychology of positive youth development. *American Psychologist*, 55(1), 170-183. doi: 10.1037/0003-066X.55.1.170.
- Larson, R., & Seepersad, S. (2003). Adolescents' leisure time in the United States: Partying, sports, and the American experiment. *New Directions for Child and Adolescent Development*, 2003(99), 53-64. doi: 10.1002/cd.66.
- Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling*, 9(2), 151-173. doi: 10.1207/s15328007sem0902_1.
- Long, C. R., & Averill, J. R. (2003). Solitude: An exploration of benefits of being alone. *Journal for the Theory of Social Behaviour*, 33(1), 21-44. doi: 10.1111/1468-5914.00204.
- Mahoney, J. L., Cairns, B. D., & Farmer, T. W. (2003). Promoting interpersonal competence and educational success through extracurricular activity participation. *Journal of Educational Psychology*, 95(2), 409. doi: 10.1037/0022-0663.95.2.409.
- Miller, S. R. (2012). I don't want to get involved: Shyness, psychological control, and youth activities. *Journal of Social and Personal Relationships*, 29(7), 908-929. doi: 10.1177/0265407512448266.
- Nelson, L. J., Rubin, K. H., & Fox, N. A. (2005). Social withdrawal, observed peer acceptance, and the development of self-perceptions in children ages 4 to 7 years. *Early Childhood Research Quarterly*, 20(2), 185-200. doi: 10.1016/j.ecresq.2005.04.007.

- Ramey, H. L., Lawford, H. L., & Rose-Krasnor, L. (2016). Motivations for Activity Participation as Predictors of Emerging Adults' Psychological Engagement in Leisure Activities. *Leisure Sciences*, 38(4), 338-356. doi: 10.1080/01490400.2015.1095661.
- Ramey, H. L., Rose-Krasnor, L., Busseri, M. A., Gadbois, S., Bowker, A., & Findlay, L. (2015). Measuring psychological engagement in youth activity involvement. *Journal of Adolescence*, 45, 237-249. doi: 10.1016/j.adolescence.2015.09.006.
- Rose-Krasnor, L. (2009). Future directions in youth involvement research. *Social Development*, 18(2), 497-509. doi: 10.1111/j.1467-9507.2008.00506.x.
- Rose-Krasnor, L., Busseri, M. A., Willoughby, T., & Chalmers, H. (2006). Breadth and intensity of youth activity involvement as contexts for positive development. *Journal of Youth and Adolescence*, 35(3), 365-379. doi: 10.1007/s10964-006-9037-6.
- Rubin, K. H., Bukowski, W. M., & Bowker, J. C. (2015). Children in peer groups. In R. M. Lerner (Series Ed.), M. H. Bornstein & T. Leventhal (Vol. Eds.), *Handbook of child psychology and developmental science, Vol. 4: Ecological settings and processes in developmental systems* (7th ed., pp. 175-222). New York: Wiley-Blackwell. doi: 10.1002/9781118963418.childpsy405.
- Rubin, K. H., Coplan, R. J., & Bowker, J. C. (2009). Social withdrawal in childhood. *Annual Review of Psychology*, 60, 141-171. doi: 10.1007/978-1-4757-9044-3_4.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78.
- Schafer, J. L., & Graham, J. W. (2002). Missing data: our view of the state of the art. *Psychological Methods*, 7(2), 147-177. doi: 0.1037/0003-066X.55.1.68.
- Sharp, E. H., Caldwell, L. L., Graham, J. W., & Ridenour, T. A. (2006). Individual motivation

- and parental influence on adolescents' experiences of interest in free time: A longitudinal examination. *Journal of Youth and Adolescence*, 35(3), 340-353. doi: 10.1007/s10964-006-9045-6.
- Shernoff, D. J., & Vandell, D. L. (2007). Engagement in after-school program activities: Quality of experience from the perspective of participants. *Journal of Youth and Adolescence*, 36(7), 891-903. doi: 10.1007/s10964-007-9183-5.
- Simpkins, S. D., Vest, A. E., Dawes, N. P., & Neuman, K. I. (2010). Dynamic relations between parents' behaviors and children's motivational beliefs in sports and music. *Parenting: Science and Practice*, 10(2), 97-118. doi: 10.1080/15295190903212638.
- Smith, A. L. (2003). Peer relationships in physical activity contexts: A road less traveled in youth sport and exercise psychology research. *Psychology of Sport and Exercise*, 4(1), 25-39. doi: 10.1016/S1469-0292(02)00015-8.
- Spangler, T., & Gazelle, H. (2009). Anxious solitude, unsociability, and peer exclusion in middle childhood: A multitrait-multimethod matrix. *Social Development*, 18(4), 833-856. Doi: 10.1111/j.1467-9507.2008.00517.x.
- Standage, M., Duda, J. L., & Ntoumanis, N. (2003). A model of contextual motivation in physical education: Using constructs from self-determination and achievement goal theories to predict physical activity intentions. *Journal of Educational Psychology*, 95(1), 97-110. doi: 10.1037/0022-0663.95.1.97.
- Vallerand, R. J. (2008). On the psychology of passion: In search of what makes people's lives most worth living. *Canadian Psychology*, 49, (1), 1-13. doi: 10.1037/0708-5591.49.1.1.
- Vandell, D. L., Shernoff, D. J., Pierce, K. M., Bolt, D. M., Dadisman, K., & Brown, B. B.

- (2005). Activities, engagement, and emotion in after-school programs (and elsewhere). *New Directions for Youth Development*, 2005(105), 121-129. Doi: doi/10.1002/yd.111.
- Weiss, H. B., Little, P., & Bouffard, S. M. (2005). More than just being there: Balancing the participation equation. *New Directions for Youth Development*, 2005(105), 15-31. doi: 10.1002/yd.105.
- Weiss, M. R., & Ferrer-Caja, E. (2002). Motivational orientations and sport behavior. In T. S. Horn (Ed.), *Motivational Orientations and Sport Behavior* (2nd ed., pp. 101-170). Champaign, IL, US: Human Kinetics.
- Westman, M., & Eden, D. (1996). The inverted-U relationship between stress and performance: A field study. *Work & Stress*, 10(2), 165-173. doi: 10.1080/02678379608256795.
- Wright, A., & Côté, J. (2003). A retrospective analysis of leadership development through sport. *Sport Psychologist*, 17(3), 268-291. doi: 10.1123/tsp.17.3.268.
- Zaff, J. F., Moore, K. A., Papillo, A. R., & Williams, S. (2003). Implications of extracurricular activity participation during adolescence on positive outcomes. *Journal of Adolescent Research*, 18(6), 599-630. doi: 0.1177/0743558403254779.
- Karevold, E., Ystrøm, E., Coplan, R. J., Sanson, A., & Mathiesen, K. S. (2012). A prospective longitudinal study of shyness from infancy to adolescence: Stability, age-related changes, and prediction of socio-emotional functioning. *Journal of Abnormal Child Psychology*, 40, 1167-1177. doi: 10.1007/s10802-012-9635-6.

Chapter 5: General discussion and conclusions

The aims of the current series of studies were to distinguish between shyness and affinity for aloneness (AFA) in middle childhood and adolescence and to investigate the associations between AFA and socio-emotional adjustment in each age group. These investigations were carried out in large and diverse samples from Canada and the U.S.A.

All main study hypotheses were largely confirmed across the three studies. Results demonstrated that AFA and shyness are distinct subtypes of social withdrawal that have characteristic associations with socio-emotional adjustment. Specifically, in Study 1 I found that shyness, but not AFA, was linked to lower social skills and greater peer victimization among children in Grades 3 – 5, confirming the main hypothesis. In Study 2 I found that high and low levels of AFA co-occur with high and low levels of shyness, and that approximately 1 in 5 adolescents had relatively high levels of AFA and low levels of shyness, indicating a distinct group of non-fearful social withdrawal. Further, I found that adolescents affiliated with the high AFA-low shyness group were comparable to adolescents in the low AFA-low shyness group on measures of socio-emotional adjustment. In Study 3, I found that shyness, but not AFA, was negatively and significantly associated with positive activity outcomes, at least partially through lower psychological engagement in the activity.

Overall, the results suggest that AFA in childhood and adolescence is relatively benign with respect to socio-emotional adjustment. However, several findings might indicate that AFA is not wholly without possible negative impact. The explanations for these results and their implications for the field will be discussed in detail next.

Longitudinal differentiation between AFA and shyness and socio-emotional correlates

Asendorpf (1990), in one of the seminal papers on heterogeneity in social withdrawal, called researchers to look “beyond social withdrawal” and investigate its markedly different subtypes and their unique implications for adjustment. Already in 1982, Rubin has shown that one of the markers of adaptive solitary behavior in young children was constructive play (e.g., engaging alone in a productive/creative activity). Rubin (1982) reported that constructive solitary play was not associated with indices of social maladjustment in preschool classroom. In contrast, functional solitary play, characterized by repeated sensory-motor action with or without objects, was maladaptive. Similar findings were reported by later researchers (e.g., Coplan, Gavinski-Molina, Lagace-Seguin & Wichmann, 2001; Nelson, Hart & Evans, 2008) in early childhood. However, this important differentiation between subtypes of social withdrawal is not commonly practiced in recent research and has not been adapted for older ages.

To my knowledge, Study 1 was the first long-term longitudinal investigation that differentiated between shyness and AFA over time and in the same sample. Thus far, longitudinal studies have either used global measures of social withdrawal (e.g., Booth-LaForce & Oxford 2008) or had short time frames (e.g., Ladd, Kochenderfer-Ladd, Eggum, Kochel, & McConnell, 2011). There had been no clear answer to concerns raised by scholars that AFA might become increasingly maladaptive over the course of childhood (Coplan & Weeks, 2010b).

The findings of Study 1 provide novel evidence to help bridge this gap in the literature. In Study 1, I utilized a longitudinal cross-lagged autoregressive analysis that allowed me to examine the unique effects of shyness and AFA on perceived outcome variables, while controlling for their shared variance and changes within each variable over time. The results indicated that shyness, but not AFA, was related to lower social skills and more peer

victimization. This set of outcomes is unique because it reflects aspects of social adjustment, which is markedly understudied in relation to AFA; indeed, internalizing problems have been the most commonly investigated potential correlates of AFA. Because impaired social functioning is one the main markers of pathology (American Psychiatric Association, 2013), it is important to understand the links between AFA and social functioning to help determine if this type of social withdrawal is maladaptive.

With respect to social skills, the findings of Study 1 extend the results of one of the few studies that directly assessed social skills in this population (Asendorpf & Meier, 1993), and further help to establish that AFA may not have a negative impact on social competencies. Further, the findings of Study 1 add to the literature on AFA and friendships. In previous research, Ladd et al., (2011) had measured only the frequency, and not quality, of friendships among children with an AFA. Thus, Study 1 provides the first indication that AFA does not have a negative association with close friendship *quality* between Grades 3 to 5.

With regard to the association between AFA and peer victimization, the findings of study 1 also bring a meaningful contribution to the literature. Peer victimization has been more frequently studied in relation to AFA than social skills and friendship quality. With that, the available research has been based on cross-sectional or short-term longitudinal studies (e.g., Coplan et al., 2013, Bowker & Raja, 2011; Coplan & Weeks, 2010b) and have shown mixed results. In Study 1, AFA, as opposed to shyness, was not related to peer victimization across three time points from Grade 3 to 5. However, a positive path from peer victimization to AFA emerged at each time point. One explanation for this latter finding could be that victimized children might want to be alone and withdraw from the environment in which they experience maltreatment. Victimized children might also rationalize their social withdrawal by attributing it

to wanting to alone because they enjoy aloneness and not because they are being victimized. Additionally, this finding might also be an artifact of the variable-centered data analysis utilized in this study. By measuring AFA and shyness simultaneously in a regression model, it is possible to account only for their shared variance, which represents individuals who are either high on both shyness and AFA, or low on both shyness and AFA. However, Schmidt and Fox (1994) suggested that high or low levels of shyness could co-occur with high or low levels of AFA. Therefore, important combinations of shyness and AFA (i.e. high AFA and low shyness and low AFA and high shyness) were not accounted for in Study 1. To address this limitation, Study 2 utilized a person-centered approach to data analysis that could account for the multidimensional appearances of shyness and AFA.

Limitations notwithstanding, Study 1 provides important evidence that AFA remains distinct from shyness at least until Grade 5, and that its unique impact on adjustment does not become negative over time, at least with respect to the variables measured in this study.

AFA and shyness as distinct subtypes of social withdrawal

The distinction between AFA and shyness has been largely neglected in studies conducted within the framework of social withdrawal. While many researchers acknowledged that AFA and shyness have unique characteristics in theory, they did not apply the appropriate methodology to measure it (e.g., Liu, Coplan, Chen, Li, Ding, & Zhou 2014). Conversely, studies conducted within the framework of personality research (e.g., Cheek & Buss, 1981; Leary, Herbst & McCrary, 2003; Schmidt & Fox, 1995) have concentrated efforts on empirically demonstrating the independence of shyness and (un)sociability. Notably, these constructs were demonstrated as having distinct characteristics among children (Tang, Santesso, Segalowitz & Schmidt, 2016) and adults (Schmidt & Fox, 1994; 1995). However, these studies were focused

mainly on examining the socio-emotional correlates of the high shyness groups and did not focus on AFA.

To the best of my knowledge, only two recent studies have attempted to apply a person-centered method in the context of AFA: Coplan, Lio, Ooi, Chen, Li and Ding, 2016 (childhood sample) and Teppers, Luyckx, Vanhalst, Kilmstra and Gussens, 2014 (adolescent sample). Both studies confirmed a distinct group of AFA, however, both studies utilized a Cluster Analysis method (For review: Aldenderfer & Blashfield, 1984). Latent Class Analysis (LCA; Muthen & Muthen, 2012) has been suggested as better suited to the classification of psychological constructs because it allows certain restrictions to be relaxed (e.g., equality of variance across classes) and permits to factor in covariates (DiStefano & Kamphaus, 2006). Moreover, Teppers et al., (2014) did not included shyness into their classification and Coplan et al., (2016) investigated a Chinese sample that could have been influenced by unique cultural effects that might not be generalizable to North American societies (Rubin, Coplan & Bowker, 2009).

To address this gap in the literature, in Study 2 I utilized LCA and directly measured shyness and AFA, to provide novel evidence that these constructs are distinct also in adolescence. Specifically, shyness and AFA were subjected to LCA at Time 1 and, as hypothesized, a four group typology emerged: low AFA-low SHY, high AFA-low SHY, high AFA-high SHY and low AFA-high SHY. Additionally, I conducted a MANOVA at Time 1 and Time 2 to measure the impact of group affiliation on socio-emotional adjustment. Overall, the High AFA-low SHY group did not differ from the low AFA-low SHY group on adjustment indices.

These results extend the literature in meaningful ways. First, the novel use of LCA in an adolescent sample bridges the knowledge gap regarding the existence of four combinations of

relatively high or low shyness and high or low AFA in this age group. Second, it provides initial evidence regarding the impact of high AFA and low shyness on socio-emotional adjustment, which emerged as mostly benign over the span of one year. Previous studies suggest that these differences persist also in young adulthood (Long & Averill, 2003).

Nevertheless, it is important to note that on several adjustment measures (depression, friendship quality and stress) the high AFA-low SHY group resembled both the low AFA-low SHY group (a non-withdrawn group) and the high AFA-high SHY group. The high AFA-high SHY group matches the motivational profile of socially avoidant youth (low approach and high avoidance motivation), a profile that has been repeatedly linked to maladjustment (Coplan et al., 2016). Thus, the resemblance of the high AFA-low SHY group to the high AFA-high SHY might be pointing to a sub-optimal developmental trajectory among the high AFA-low SHY group on certain adjustment measures. This finding could have several explanations.

First, previous studies reported that AFA could be indirectly linked to maladjustment through peer victimization (e.g., Coplan et al., 2013). Because peer victimization was not measured in Study 2, it is possible that the resemblance of the high AFA-low SHY group to the high AFA-high shyness group was driven by individuals in the high AFA-low SHY group who were exposed to peer maltreatment.

A second explanation is rooted in differences between research traditions that investigated aloneness. Researchers who have investigated AFA from a social withdrawal perspective have tended to emphasize the underlying approach-avoidance *motivations* (e.g., Coplan & Armer, 2007), while researchers who investigate AFA from a solitude perspective (e.g., Larson, 1990) have tended to emphasize its *functions*. For instance, children reported they liked to be alone for reasons such as thinking, engaging in hobbies and doing school work

(Galanaki, Mylonas & Vogiatzoglou, 2015). In adolescence, constructive time spent in solitude was tied to identity exploration and individuation processes, positive affect and future planning (Larson, 1997; Majorano, Musetti, Brondino, & Corsano, 2015). Thus, while seeking to be physically alone (solitude) and being solitary in a group of peers (social withdrawal) are different contexts of aloneness, it appears that there is an overarching trend of heterogeneity in the functions of aloneness and that these functions play a large role in socio-emotional adjustment from childhood through adolescence. Because a global measure of AFA was used in Study 2, it is possible that it encompassed both constructive and non-constructive solitary behaviors, and that the variance of the non-constructive aspects has made the group as a whole appear as more negatively adjusted. In future studies researchers should measure both approach-avoidance motivations, as well as the actual ways in which time in solitude is being spent.

To conclude, the results of Study 2 provide important initial evidence that AFA and shyness are distinct subtypes of social withdrawal in adolescence and have differential associations with socio-emotional adjustment over the course of one year. Most notably, the High AFA-low shyness group appears to be relatively adjusted compared to non-withdrawn peers. Previous studies (such as Schmidt & Fox, 1995 and Tang et al., 2016) were not longitudinal, did not study adolescents and did not focus on individuals with high AFA (but rather high shyness). Therefore, the Study 2 provides an addition to the knowledge on social withdrawal as a whole, and on AFA in particular.

AFA and shyness in the context of organized sports activities

AFA, as opposed to shyness, has not been studied before in the context of organized sports activities. It is important to investigate children with an AFA in this context because it has been identified as important for healthy development (e.g., Rose-Krasnor, Busseri, Willoughby

& Chalmers, 2006). However, many sports activities are group-based and put emphasis on social components (Smith, 2003). Therefore, children with an AFA might be less interested and engaged in sports activities than non-withdrawn children, which in turn might lead to a disadvantage in social development. On the other hand, children with an AFA might be interested in non-social aspects of sports that are also beneficial, such as physical activity (Kirkcaldy, Shephard, & Siefen, 2002). Physical activity was linked to multiple mental health benefits such as reduced anxiety and depression and increased self-esteem (Biddle & Asare, 2013).

Further, children with an AFA could positively engage in sports activities because they reportedly have intact social skills (Asendorpf & Meier, 1993; Coplan et al., 2004). Shy children, on the other hand, have lower social skills and experience evaluative fears in social situations, that may pre-dispose them to difficulties in organized sports (Findaly & Coplan, 2008). Due to lack of research on children with an AFA in the sports context, it is not known whether they are able to reap the developmental benefits that organized sports participation can afford. It is also unknown how adolescents with an AFA function in the context of organized sports activities. Based on the theory and results of Study 3, it is logical to assume that adolescents with an AFA would not be disadvantaged in organized sports. However, changes in social dynamics in adolescence may create unique circumstances that would alter these associations. For instance, sports participation is linked to popularity in adolescence (Kreager, 2007). If adolescents with an AFA participated differently in the social aspects of organized sports, this may influence their level of acceptance among peers. Future longitudinal research should be conducted to answer these questions.

Study 3 was designed to expand the knowledge of children with an AFA in the context of organized sports by measuring shyness and AFA¹ simultaneously, using the Child Social Preference Scale (CSPS; Coplan et al., 2004), a parent-rated measure developed specifically to distinguish between shyness and AFA (unsociability) in young children. In Study 3, I investigated the associations of AFA and shyness with psychological engagement in sports and with perceived positive activity outcomes. As expected, AFA, as opposed to shyness, was not negatively linked with psychological engagement in sports or with positive activity outcomes. These findings suggest that children with an AFA are not disadvantaged in the sports context, even if they are not socially outgoing and gregarious, which are attributes encouraged in many sports settings (Larson & Seepersad, 2003). The current findings provide initial evidence that parents and coaches should not be immediately concerned regarding the adjustment of these children in sports.

Linking research paradigms - Implications for theory, measurement and data analysis

Taken together, the current series of studies demonstrates that AFA is distinct from shyness in childhood, as well as in adolescence, and that AFA is associated with better socio-emotional adjustment than is shyness in both life stages.

Thus far, our understanding of AFA has been limited due to a disconnection among research paradigms devoted to the study of AFA in different life stages, in which different nomenclature and measurement tools are used. Specifically, childhood researchers tend to refer to non-fearful social withdrawal as unsociability, and most commonly measure it using the CSPS scale (Coplan et al., 2004), a parent-rated scale that assesses both unsociability and shyness. In

¹ The term unsociability was used in study 3 to match the terminology of the used instrument - Child Social Preference Scale (Coplan et al., 2004).

research on adolescents, there has been a mixed use of several terms, including unsociability, preference for solitude and affinity for aloneness. Further, a relatively large variety of measures are used to assess AFA itself. Some researchers have used a modified version of the CSPS (e.g., Bowker & Raja, 2011 and Nelson, 2013); others used the *Social Withdrawal Scale* (SWS; Terrell-Deutsch, 1999, used by Wang, Rubin, Laursen, Booth La-Force & Rose-Krasnor, 2013) or the *Loneliness and Aloneness Scale for Children and Adolescents* (LACA; Marcoen & Goossens, 1993; see Galanaki, 2015, for review).

The CSPS (Coplan et al., 2004) is the only scale that measures AFA (termed unsociability in the original scale) and shyness simultaneously, which is an advantage compared to the other scales that do not measure shyness alongside AFA because it allows researchers to partial out the variance unique to AFA. Granted, it is possible to use separate scales for AFA and shyness and control for their shared variance, but most studies that focus on AFA fail to include a shyness measure. Therefore, a measure that already assesses both constructs could help scholars not to overlook adding important covariates when studying AFA.

The SWS resembles the AFA items of the CSPS because both focus on the reasons why children prefer to play alone. For instance, the SWS has items such as “I spend time alone because I want to be alone more than I want to be with other kids,” and “I would rather be alone than with others”. The CSPS has items such as “My child is just as happy to play quietly by his/herself than to play with a group of children” and “My child seems content to play alone”. The main advantages of the CSPS scale are therefore in its adaptation to self and parent reports from childhood to adolescent and in its inclusion of items assessing shyness.

The LACA has four subscales: peer related loneliness, parent related loneliness, and positive and negative attitudes towards aloneness. Thus, only two out of the four subscales are

devoted to aloneness, while the others are devoted to loneliness, which is a distinct form aloneness (loneliness is a subjective negative emotion that could be experienced also when one is not physically alone; Peplau & Perlman, 1982). The LACA does not directly measures the underlying motivation to be alone but rather the attitude towards aloneness. Measuring attitude towards aloneness is an important subjective facet of the aloneness experience, that could contribute unique information and thus promote the understanding of the phenomenon. Researches are encouraged to include this measure of attitude towards aloneness alongside measures of approach-avoidance motivations to withdraw from others.

None of the above mentioned instruments include measures of what children/adolescents do when they are alone and how they feel while alone. Leary, Herbst and McCrary (2003), for example, assessed both the reasons participants sought solitude (e.g., to feel peaceful, to satisfy a need for anonymity) and their affect while spending time alone. It is important to assess both the motivations and the actual experience of being alone in order to better understand if aloneness could be beneficial to development and not merely benign. Therefore, I suggest that future studies focusing on AFA would use a set of instruments comprising measures of underlying motivations for the desire to be alone, the ways in which time alone is being spent, the affect experienced during aloneness and attitudes towards aloneness. Importantly, studies should include measures of fearful social withdrawal as a covariate.

Currently, the inconsistencies in nomenclature and measurement methods limit the ability to compare between studies conducted among different age groups and could even reduce the probability of longitudinal studies that span from childhood into adolescence. Granted, the manifestation and functions of aloneness change markedly throughout development (Larson 1990; Long & Averill, 2003) and the measurement tools must reflect these changes. At the same

time, theoretical unity should be maintained, to reflect the premise that AFA persists from childhood to adolescence as a distinct subtype of social withdrawal.

In my doctoral thesis studies I aimed to follow this approach by using measurement tools that assess the core characteristics of AFA in all examined age groups. This approach allowed me to provide initial evidence for the existence of a non-fearful social withdrawal tendency in middle childhood and in adolescence. These results strengthen the need for greater continuity in measurement and theory between the research paradigms devoted to the understanding of AFA throughout development. I therefore suggest that the aforementioned disconnect between research paradigms is artificial and harms the ecological understanding of the topic. I hope that the present findings would help bring greater consistency into the field.

To achieve this goal, I suggest that unified terminology and measurement methods would be adopted across aloneness paradigms. Specifically, I suggest the term AFA as the term that most accurately captures the core of the construct, namely a non-fearful tendency to prefer to spent time alone, accompanied by a positive attitude towards aloneness. Based on the results on Studies 1-3, it appears that this definition successfully differentiated between children and adolescence with an AFA from others with fearful social withdrawal. To improve the consistency and generalizability of studies focusing on different age groups, it is important that the same measure would be adapted for children and adolescence. Importantly, when assessing fearful and non-fearful social withdrawal in early childhood, parental reports should be incorporated into the measurement battery, along with self-report. Parents may be able to more accurately assess certain aspects of social withdrawal, such as the proportion of time children spend on their own versus with others, and even cognitions and motivation (Harris, 2008). The CPSP scale (Coplan et al., 2004) has already been used in a similar way. It was originally

developed as a parental report of shyness and unsociability and validated on a sample of young children and their parents. Later it was adapted for self-report by adolescents and was used successfully in several studies (e.g., Bower & Raja, 2010, Nelson 2013). Because the CSPA has been demonstrated as a reliable and valid measure in childhood and adolescents as both parental and self-report, and because it includes a shyness subscale, it is an appropriate option to become the standard scale for AFA measurement in the field.

Additionally, it is important to include a measure of aloneness functions in studies of AFA. Galanaki et al., (2015) attempted to validate the Children's Solitude Scale (CSS) that includes 60 items and assesses solitude functions such as self-discovery, spirituality, self-control, privacy and more. The authors reported adequate internal consistency, test-retest reliability and convergent and divergent validity. However, a confirmatory factor analysis (that indicated a four factor solution: self-reflection, autonomy, activities and concentration) achieved a less than optimal fit. Therefore, future research should be conducted to determine if the CSS is an appropriate measure for aloneness functions that could be regularly used in studies alongside an aloneness motivations scale such as the CSPA.

Limitations and summary of future directions

There are many strengths to the three studies comprising this dissertation, such as the use of longitudinal data, diverse and large samples of both children and adolescents and the use of person-centered data analysis. However, they are not without limitations.

Studies 1 and 3 were based on parental ratings (except for child-rated friendship quality measure in Study 1). Parental reports of children's social preferences might be subjected to biases because the motivation to withdraw from others is internal to the child (Asendorpf, 1990), while parents have an external perspective in which they must infer the children's psychological

state. Parents' judgments of the children's motivations might be further influenced by contextual factors, such as the frequency of exposure to the child in social situations, as well by their own attitudes and feelings (Noordhof, Oledenhinkel, Verhulst & Ormel, 2008). Notwithstanding the potential impact of these contextual factors, there have been some indications that parental ratings of shyness accurately capture children's tendency to be socially wary in novel social situations, which is a key marker of shyness and avoidance (Eisenberg, Shepard, Fabes, Murphy & Guthrie, 1998). Additionally, parental reports of social preferences have been shown to reliably distinguish between shyness and AFA (Coplan et al., 2004). Parental report may be more appropriate to the study of young children's social preferences, while self-report may be more appropriate later in childhood and adolescence because the ability to assess internal states becomes more sophisticated with age (Coplan, Ooi, & Nocita, 2015). This is consistent with the current series of studies as Studies 1 and 3 utilized parental report in middle childhood, while Study 2 utilized self-report in adolescence. Of note, the self-report method used in Study 2 among adolescents is not without its own limitations, such as recall bias and social desirability (Paulhus & Vazire, 2007).

Other useful methods of assessing AFA are observations (in childhood) and diary studies (in adolescence). Young children are rarely left completely alone; therefore, the main expression of AFA in this age group is being alone when peers are present. Several studies have used observational tools of social withdrawal from the peer group and were able to distinguish between fearful and non-fearful social withdrawal (Coplan, Gavinski-Molina, Lagace-Seguin & Wichmann, 2001; Meier & Asendorpf, 1993). For example, Coplan et al., (2001) distinguished between reticent, passive-solitary play and active-solitary behaviors. Reticent behavior consists of on-looking and watching other children play, without making an attempt to join. Reticent

behavior was reported as a marker of social fear and anxiety. Solitary-passive behavior consists of constructive behavior, such as drawing or building with blocks, and could be a marker of AFA. Solitary-passive play was not related to any indices of maladjustment. Contrary, solitary-active behavior that consists of performing repetitive motions and boisterous gestures was linked to peer-rejection. To conclude, subtypes of social withdrawal in early childhood could be expressed in the ways children behave among peers, and the empirical observation of these behaviors could add an important layer of contextual and ecological understanding of AFA.

Diary studies, in which people provide frequent reports of their mental and physical experience in natural settings (Bolger, Davis & Rafaeli, 2003), could be a useful way to assess motivations and functions of aloneness in adolescence. The main strength of diary studies lays in reduction of recall bias, due to minimization of the time elapsed between the experience and its reporting (Cranford, Shrout, Iida, Rafaeli, Yip & Bolger 2006). Diary studies could be particularly useful to study why adolescents choose to be alone, what do they do when they are alone, and whether this time is used in constructive vs. non-constructive ways. To the best of my knowledge, there are no diary studies on AFA; therefore, future research should explore this direction to learn more about the ways adolescents use their alone time.

Another limitation of the dissertation is the use of different AFA and shyness measures in each of the three studies. This occurred due to constrained availability of measures in the pre-collected longitudinal data sets that were used in Studies 1 and 2. However, the differentiation between shyness as fearful social withdrawal and AFA as non-fearful social withdrawal was maintained in each study. Additionally, an effort was made to include in AFA measures only items that assessed the underlying motivations to withdraw from others, rather than items that represented social withdrawal merely as a physical state of being alone or withdrawn among

peers. Despite the use of different measures, AFA emerged as distinct from shyness in all three studies, a trend that strengthens the validity of the assumption that there is motivational heterogeneity in social withdrawal.

Another limitation of the current research has to do with the cross-sectional design used in Study 3, which means that the results may only be interpreted in correlational terms. Based on theory and previous literature, I hypothesized that AFA and shyness would have differential predictive associations with psychological engagement in the sport activity and perceived activity outcomes. However, it is possible that initial individual difference in psychological engagement and the activity outcomes measure could have an impact on the manifestation of AFA and shyness in the activity. While this possibility cannot be ruled out, in previous studies it was demonstrated that individual differences in AFA and shyness emerge early (e.g., Parker, Rubin, Erath, Wojslawowicz & Buskirk, 2006) and in Study 1 I showed that they remain consistent over time. Therefore, it is likely that the expression of AFA and shyness pre-dated individual differences in psychological engagement in sports and the outcomes of the activity.

Nevertheless, longitudinal research is needed in order to establish time order and determine the direction of effects. For instance, a particularly robust design would be one in which shyness and AFA are measured before children enroll in sports (time 1), psychological engagement is measured after enrollment (time 2) and activity outcomes are measured after psychological engagement (time 3). This design would enable researchers to conclude with greater certainty if shyness and AFA drive changes in psychological engagement in sports and activity outcomes.

Limitations notwithstanding, the current studies extend the literature in meaningful ways and report novel findings. Most notably, they point to a unique profile of children and

adolescents with an AFA that is largely benign with respect to adjustment. Alongside the direct contribution of the current doctoral studies to the understanding of AFA, they also lay a foundation for further advancement of research on the topic. Specifically, several directions for future studies were identified and are described below.

First, in order to achieve advanced and actionable understanding of the characteristics and impact of AFA in childhood and adolescence, studies should be longitudinal, use person-centered analysis (preferably Latent Class Analysis), include multi-informant measures of AFA, and assess attitudes, motivations and functions of aloneness.

Second, it is important to measure contextual variables to expand the knowledge on AFA in different settings of the child or the adolescent lives. For instance, peer victimization and exclusion were linked to AFA in correlational studies (e.g., Colpan & Weeks, 2010b), and in Study 1 I found that peer victimization had a positive and significant path to AFA between Grades 3-5. Future research should explore whether, indeed, there is something about children with an AFA that makes them less likable or that peer maltreatment pre-dates a preference to be alone. It is further important to investigate how victimized children spend their time alone. If they choose solitude to get away from victimizing or excluding peers, their experience of aloneness might be more negative than that of non-victimized children with an AFA.

Other potentially important moderating variables are family and peer social support. Family and peer social support have been linked to positive socio-emotional adjustment in childhood and adolescence (Compas, Slavin, Wagner, & Vannatta, 1986). However, the relative importance of social support sources changes between childhood and adolescence, as the role of peer social support increases compared to the role of family social support (Furman & Buhrmester, 1992). In my studies I found that the correlates of AFA with adjustment outcomes

were more stable and benign in middle childhood than in adolescence. It is possible that these changes could be explained in part by changes in social support. Adolescents derive emotional and instrumental support from their peer network, which helps them to better cope with academic and personal challenges (Crosnoe & Elder, 2004). Adolescence with an AFA might find themselves with less social resources merely because their social networks could be smaller, which in turn might have a negative impact on adjustment. To conclude, it would be interesting to examine if social support levels and sources could explain the differences I found in the links between AFA and adjustment in childhood and adolescence.

Further it is important to investigate the potential impact of school and classroom climate on socio-emotional adjustment of children and adolescents with an AFA. Overall, positive school climate has been reported as an important factor in healthy emotional, social and educational adjustment (Eccles & Roeser, 1999). Perhaps children with an AFA would have better adjustment outcomes in school environments that are more tolerable and accepting of children who do not fit the ideal model of an outgoing and sociable child, a model that is often rewarded by peers and teachers (Adams, Ryan, Ketschis & Keating, 2000; Harkness et al., 2007). A school environment that accepts and encourages self-expression, rather than conformity to pre-determined social norms, could possibly help children with an AFA to thrive and reap benefits from their time alone, as well as time spent with others.

Finally, it is important to investigate the possible moderating impact of gender in the relations between AFA and socio-emotional adjustment. In my studies I did not find a gender moderation, contrary to previous studies (e.g., Liu et al., 2014). It is important to note that the majority of studies that reported a gender moderation were cross-sectional, while I examined the moderating role of gender longitudinally (in Studies 1 and 2). It is also possible that gender

moderation plays a larger role in age groups that were not examined in my studies (e.g., early adolescence). Further it is plausible that while gender did not moderate the relations between AFA and the specific socio-emotional outcomes that I studied, it could moderate relations with other types of outcomes. Future research should identify the contexts in which gender plays a role in the adjustment impact of AFA in childhood and adolescence.

Finally, it is important to strive for greater collaboration between researchers who are from different paradigms of aloneness, who should be encouraged to cultivate a wide empirical framework to achieve a more comprehensive understanding of the topic.

Conclusion

The current doctoral studies help to bring greater clarity to previous inconsistencies in the literature and support the classification of AFA as non-fearful social withdrawal that is distinct from shyness. As a non-fearful type of social withdrawal, AFA appears to be mostly benign with respect to socio-emotional adjustment in childhood and adolescence, when compared to fearful types of social withdrawal and a non-withdrawn group.

The scarcity of longitudinal studies and lack of consistent differentiation between subtypes of social withdrawal found in previous research were addressed in Studies 1 and 2. These studies measured AFA separately from shyness in longitudinal samples and used rigorous methods of statistical analysis (Auto-regressive cross-lagged analysis in Study 1 and Latent Class Analysis in Study 2). The lack of attention to specific contexts in AFA was addressed in Study 3, which examined AFA and shyness in organized sports.

The overarching finding that AFA is largely unassociated with negative socio-emotional consequences in childhood and adolescence provides an initial answer to concerns raised by scholars that AFA might become an increasingly negative force throughout development (e.g.,

Coplan & Weeks, 2010a). The results of the current studies suggest that not all the solitary behaviors of children and adolescents are a reason for concern. This is also in line with the argument that social withdrawal has become over-pathologized and that interventions are often unnecessary and might even have adverse effects (Aho, 2010). In the same vein, scholars have called for the adoption of more flexible approaches to social withdrawal and suggested a need to view it as a continuum of ‘social fitness’ (Henderson, Gilbert & Zimbardo, 2014). Indeed, the current studies have demonstrated that children and adolescents who are less social and outgoing, but not socially fearful, are similar to non-withdrawn peers in their ability to form close friendships of high-quality, competently use their social skills, have intact self-esteem and are as satisfied with their lives.

Nevertheless, parents and teachers should be alert to possible signs of maladjustment, especially peer difficulties, in children with an AFA. Attention should be paid to solitary children who are without social relationships or have only a very few shallow ones, are excluded or victimized, or show signs of emotional distress.

While the findings of the current doctoral studies suggest that the implications of AFA are not necessarily negative, it is yet unclear whether AFA confers any developmental advantages. There is an extensive literature on the benefits of solitude in different life stages (for review see Averill & Long, 2003; Larson, 1990), but it has not been researched in the context of individual differences in AFA and shyness. To promote healthy development, empirical efforts should be invested not only in the prevention of negative developmental outcomes, but also in facilitation of positive contexts for development. Therefore, if AFA is merely benign in most circumstances, scholars should investigate ways in which it can be leveraged to be a positive force in development. For instance, similar to ‘social learning’ interventions (Henderson et al.,

2014), young people can be educated to optimize the time they spend alone (e.g., self-reflection, future planning, goal-setting, reading).

The current work also raises the larger question of the role of sociability in the lives of children and youth. The ability to create intricate social networks and effectively communicate with others has been singled as one of the main drivers of the dominance achieved by *Homo Sapiens* over other ancient human species and contributed greatly to the evolution into modern humans (Harari, 2014). Consistent with this view, in many Western societies, sociability is the hallmark of adjusted individuals and being outgoing and gregarious is encouraged and rewarded. This dynamic may lead individuals with quiet and reserved dispositions to develop a negative self-perception and be less accepted by others (Dalrymple & Zimmerman, 2013). Moreover, this negative cascade may mask the potential positive impact of spending constructive time alone and alter the otherwise normal development of those with an AFA. Such unfortunate circumstances should be prevented because, for some individuals, being alone is a basic psychological need, in parallel with the need to socialize and be with others (Buchholz, 1999). I hope therefore that the current work will encourage more scholars to better understand the unique developmental trajectories of AFA and continue to explore its potential benefits for development across the lifespan.

References

- Aho, K. (2010). The psychopathology of American shyness: A hermeneutic reading. *Journal for the Theory of Social Behaviour*, 40(2), 190-206. doi: 10.1111/j.1468-5914.2009.00425.x.
- Adams, G. R., Ryan, B. A., Ketsetzis, M., & Keating, L. (2000). Rule compliance and peer sociability: A study of family process, school-focused parent–child interactions, and children's classroom behavior. *Journal of Family Psychology*, 14(2), 237. doi: 10.1037/0893-3200.14.2.237.
- Aldenderfer, M. S., & Blashfield, R. K. (1984). *Quantitative Applications in the Social Sciences—Cluster Analysis*. Thousand Oaks: Sage Publications.
- American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 5th ed. Arlington: American Psychiatric Association; 2013.
- Asendorpf, J. B. (1990). Beyond social withdrawal: Shyness, unsociability, and peer avoidance. *Human Development*, 33(4-5), 250-259. doi: 10.1159/000276522.
- Asendorpf, J. B., & Meier, G. H. (1993). Personality effects on children's speech in everyday life: sociability-mediated exposure and shyness-mediated reactivity to social situations. *Journal of Personality and Social Psychology*, 64(6), 1072. doi: 10.1037/0022-3514.64.6.1072.
- Biddle, S. J., & Asare, M. (2011). Physical activity and mental health in children and adolescents: a review of reviews. *British Journal of Sports Medicine*, bjsports90185. doi: 10.1136/bjsports-2011-090185.
- Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology*, 54(1), 579-616. doi: 10.1146/annurev.psych.54.101601.145030.

- Booth-LaForce, C., & Oxford, M. L. (2008). Trajectories of social withdrawal from grades 1 to 6: prediction from early parenting, attachment, and temperament. *Developmental Psychology, 44*(5), 1298. doi: 10.1037/a0012954.
- Bowker, J. C., Markovic, A., Cogswell, A., & Raja, R. (2012). Moderating effects of aggression on the associations between social withdrawal subtypes and peer difficulties during early adolescence. *Journal of Youth and Adolescence, 41*(8), 995-1007. doi: 10.1007/s10964-011-9712-0.
- Bowker, J. C., & Raja, R. (2011). Social withdrawal subtypes during early adolescence in India. *Journal of Abnormal Child Psychology, 39*(2), 201-212. doi: 10.1007/s10802-010-9461-7.
- Buchholz, E. S., & Catton, R. (1999). Adolescents' perceptions of aloneness and loneliness. *Adolescence, 34*(133), 203.
- Cheek, J. M., & Buss, A. H. (1981). Shyness and sociability. *Journal of Personality and Social Psychology, 41*(2), 330. doi: 10.1037/0022-3514.41.2.330.
- Compas, B. E., Slavin, L. A., Wagner, B. M., & Vannatta, K. (1986). Relationship of life events and social support with psychological dysfunction among adolescents. *Journal of Youth and Adolescence, 15*(3), 205-221. doi: 10.1007/BF02139123.
- Coplan, R. J., & Armer, M. (2007). A “multitude” of solitude: A closer look at social withdrawal and nonsocial play in early childhood. *Child Development Perspectives, 1*(1), 26-32. doi: 10.1111/j.1750-8606.2007.00006.x.
- Coplan, R. J., Gavinski-Molina, M. H., Lagace-Seguin, D. G., & Wichmann, C. (2001). When girls versus boys play alone: Nonsocial play and adjustment in kindergarten. *Developmental Psychology, 37*(4), 464. doi: 10.1037/0012-1649.37.4.464.

- Coplan, R. J., Liu, J., Ooi, L. L., Chen, X., Li, D., & Ding, X. (2016). A Person-Oriented Analysis of Social Withdrawal in Chinese Children. *Social Development*. doi: 10.1111/sode.12181.
- Coplan, R. J., Ooi, L. L., & Nocita, G. (2015). When one is company and two is a crowd: Why some children prefer solitude. *Child Development Perspectives*, 9(3), 133-137. doi: 10.1111/cdep.12131.
- Coplan, R. J., Prakash, K., O'Neil, K., & Armer, M. (2004). Do you "want" to play? Distinguishing between conflicted shyness and social disinterest in early childhood. *Developmental Psychology*, 40(2), 244. doi: 10.1037/0012-1649.40.2.244.
- Coplan, R. J., Rose-Krasnor, L., Weeks, M., Kingsbury, A., Kingsbury, M., & Bullock, A. (2013). Alone is a crowd: Social motivations, social withdrawal, and socioemotional functioning in later childhood. *Developmental Psychology*, 49(5), 861. doi: 10.1037/a0028861.
- Coplan, R. J., & Weeks, M. (2010). Unsociability in middle childhood: Conceptualization, assessment, and associations with socioemotional functioning. *Merrill-Palmer Quarterly*, 56(2), 105-130.
- Cranford, J. A., Shrout, P. E., Iida, M., Rafaeli, E., Yip, T., & Bolger, N. (2006). A procedure for evaluating sensitivity to within-person change: can mood measures in diary studies detect change reliably?. *Personality and Social Psychology Bulletin*, 32(7), 917-929. doi: 10.1177/0146167206287721.
- Crosnoe, R., & Elder, G. H. (2004). Family dynamics, supportive relationships, and educational resilience during adolescence. *Journal of Family Issues*, 25(5), 571-602. doi: 10.1177/0192513X03258307.

- Dalrymple, K. L., & Zimmerman, M. (2013). When Does Benign Shyness Become Social Anxiety, a Treatable Disorder: The Authors Pinpoint the Fine Line between Overdiagnosis and Underdiagnosis of SAD. *Current Psychiatry*, 12(11), 21.
- DiStefano, C., & Kamphaus, R. W. (2006). Investigating subtypes of child development: a comparison of cluster analysis and latent class cluster analysis in typology creation. *Educational and Psychological Measurement*, 66(5), 778-794. doi: 10.1177/0013164405284033.
- Coplan, R. J., Prakash, K., O'neil, K., & Armer, M. (2004). Do you" want" to play? Distinguishing between conflicted shyness and social disinterest in early childhood. *Developmental Psychology*, 40(2), 244. doi: 10.1037/0012-1649.40.2.244.
- Eccles, J. S., & Roeser, R. W. (1999). School and community influences on human development. In M. H. Bornstein & M. E. Lamb, (Eds). *Developmental psychology: An advanced textbook*, 4th ed., (pp. 503-554). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Eisenberg, N., Shepard, S. A., Fabes, R. A., Murphy, B. C., & Guthrie, I. K. (1998). Shyness and Children's Emotionality, Regulation, and Coping: Contemporaneous, Longitudinal, and Across-Context Relations. *Child Development*, 69(3), 767-790. doi: 10.1111/j.1467-8624.1998.tb06242.x.
- Findlay, L. C., & Coplan, R. J. (2008). Come out and play: Shyness in childhood and the benefits of organized sports participation. *Canadian Journal of Behavioural Science/Revue Canadienne des Sciences du Comportement*, 40(3), 153-161. doi: 10.1037/0008-400X.40.3.153.

- Furman, W., & Buhrmester, D. (1992). Age and sex differences in perceptions of networks of personal relationships. *Child Development*, 63(1), 103-115. doi: 10.1111/j.1467-8624.1992.tb03599.x.
- Galanaki, E. P. (2015). Solitude as a State of Positive Aloneness in Childhood and Adolescence. In I. C. Kowalski, J. P. Cangemi, A. Rokach, (Eds.), *Loneliness in life: Education, business, and society*. Dubuque, IA: McGraw Hill.
- Galanaki, E. P., Mylonas, K., & Vogiatzoglou, P. S. (2015). Evaluating voluntary aloneness in childhood: Initial validation of the Children's Solitude Scale. *European Journal of Developmental Psychology*, 12(6), 688-700. doi: 10.1080/17405629.2015.1071253.
- Gazelle, H., & Ladd, G. W. (2003). Anxious solitude and peer exclusion: A diathesis–stress model of internalizing trajectories in childhood. *Child Development*, 74(1), 257-278. Doi: 10.1111/1467-8624.00534.
- Gazelle, H., & Rudolph, K. D. (2004). Moving toward and away from the world: Social approach and avoidance trajectories in anxious solitary youth. *Child Development*, 75(3), 829-849. doi: 10.1111/j.1467-8624.2004.00709.x.
- Harari, Y. N. (2014). *Sapiens: A brief history of humankind*. Random House.
- Harkness, S., Blom, M., Oliva, A., Moscardino, U., Zylicz, P. O., Bermudez, M. R., ... & Super, C. M. (2007). Teachers' ethnotheories of the 'ideal student' in five western cultures. *Comparative Education*, 43(1), 113-135. Doi: 10.1080/03050060601162438.
- Harris, P. L. (2008). Children's understanding of emotion. In M. Lewis, J.M Haviland, L.F Barrett, (Eds). *Handbook of emotions*, 3 (pp. 320-331). New York: The Guilford Press.
- Henderson, L., Gilbert, P., & Zimbardo, P. (2014). Shyness, social anxiety, and social phobia. In S.G. Hofmann & P.M. Dibartolo (Eds.) *Social anxiety* (pp. 95-115). Elsevier.

- Kirkcaldy, B. D., Shephard, R. J., & Siefen, R. G. (2002). The relationship between physical activity and self-image and problem behaviour among adolescents. *Social Psychiatry and Psychiatric Epidemiology*, 37(11), 544-550. doi: 10.1007/s00127-002-0554-7.
- Kreager, D. A. (2007). Unnecessary roughness? School sports, peer networks, and male adolescent violence. *American Sociological Review*, 72(5), 705-724. doi: 10.1177/000312240707200503.
- Ladd, G. W., Kochenderfer-Ladd, B., Eggum, N. D., Kochel, K. P., & McConnell, E. M. (2011). Characterizing and comparing the friendships of anxious-solitary and unsociable preadolescents. *Child Development*, 82(5), 1434-1453. doi: 10.1111/j.1467-8624.2011.01632.x.
- Larson, R. W. (1990). The solitary side of life: An examination of the time people spend alone from childhood to old age. *Developmental Review*, 10(2), 155-183. doi: 10.1016/0273-2297(90)90008-R.
- Larson, R. W. (1997). The emergence of solitude as a constructive domain of experience in early adolescence. *Child Development*, 80-93. doi: 10.2307/1131927.
- Larson, R., & Seepersad, S. (2003). Adolescents' leisure time in the United States: Partying, sports, and the American experiment. *New Directions for Child and Adolescent Development*, 2003(99), 53-64. doi: 10.1002/cd.66.
- Leary, M. R., Herbst, K. C., & McCrary, F. (2003). Finding pleasure in solitary activities: desire for aloneness or disinterest in social contact? *Personality and Individual Differences*, 35(1), 59-68. doi: 10.1016/S0191-8869(02)00141-1.

- Liu, J., Coplan, R. J., Chen, X., Li, D., Ding, X., & Zhou, Y. (2014). Unsociability and shyness in Chinese children: Concurrent and predictive relations with indices of adjustment. *Social Development*, 23(1), 119-136. doi: 10.1111/sode.1203.
- Long, C. R., & Averill, J. R. (2003). Solitude: An exploration of benefits of being alone. *Journal for the Theory of Social Behaviour*, 33(1), 21-44. doi: 10.1111/1468-5914.00204.
- Majorano, M., Musetti, A., Brondino, M., & Corsano, P. (2015). Loneliness, emotional autonomy and motivation for solitary behavior during adolescence. *Journal of Child and Family Studies*, 24, 3436-3447. doi: 10.1007/s10826-015-0145-3.
- Marcoen, A., & Goossens, L. (1993). Loneliness, attitude toward aloneness, and solitude - Age differences and developmental significance during adolescence. In S. Jackson & H. Rodriguez-Tome, (Eds). *Adolescence and its social worlds*. Paris: Erlbaum Publisher.
- Muthén, L. K., & Muthén, B. O. (2012). Mplus User's Guide 7. Los Angeles, CA.
- Nelson, L. J. (2013). Going it alone: Comparing subtypes of withdrawal on indices of adjustment and maladjustment in emerging adulthood. *Social Development*, 22(3), 522-538. doi: 10.1111/j.1467-9507.2012.00671.x.
- Nelson, L. J., Hart, C. H., & Evans, C. A. (2008). Solitary-functional Play and Solitary-pretend Play: Another Look at the Construct of Solitary-active Behavior Using Playground Observations. *Social Development*, 17(4), 812-831. doi: 10.1111/j.1467-9507.2008.00470.x.
- Noordhof, A., Oldehinkel, A. J., Verhulst, F. C., & Ormel, J. (2008). Optimal use of multi-informant data on co-occurrence of internalizing and externalizing problems: the TRAILS study. *International Journal of Methods in Psychiatric Research*, 17(3), 174-183. doi: 0.1002/mpr.258.

- Parker, J., Rubin, K., Erath, X., Wojslawowicz, J., & Buskirk, A. (2006). Developmental psychopathology: Risk, disorder, and adaptation. *Developmental Psychopathology, 1*, 419-493.
- Peplau, L. A., & Perlman, D. (1982). Perspectives on loneliness. In L. A. Peplau & D. Perlman, (Eds.), *Loneliness: A sourcebook of current theory, research and therapy* (pp. 1-18). New York: Wiley.
- Paulhus, D. L., & Vazire, S. (2007). The self-report method. In R.W. Robins, R.C. Fraely, R.F. Krueger (Eds). *Handbook of research methods in personality psychology, 1*, (pp. 224-239). New York: The Guilford Press.
- Rose-Krasnor, L., Busseri, M. A., Willoughby, T., & Chalmers, H. (2006). Breadth and intensity of youth activity involvement as contexts for positive development. *Journal of youth and adolescence, 35*(3), 365-379. doi: 10.1007/s10964-006-9037-6.
- Rubin, K. H. (1982). Social and Social—Cognitive Developmental Characteristics of Young Isolate, Normal, and Sociable Children. In K. H. Rubin & H. S. Ross (Eds.) *Peer relationships and social skills in childhood* (pp. 353-374). New York: Springer. doi: 10.1007/978-1-4613-8180-8_16.
- Rubin, K. H., Coplan, R. J., & Bowker, J. C. (2009). Social withdrawal in childhood. *Annual review of psychology, 60*, 141. doi: 10.1146/annurev.psych.60.110707.163642.
- Schmidt, L. A., & Fox, N. A. (1994). Patterns of cortical electrophysiology and autonomic activity in adults' shyness and sociability. *Biological Psychology, 38*(2), 183-198. doi: 10.1016/0301-0511(94)90038-8.

- Schmidt, L. A., & Fox, N. A. (1995). Individual differences in young adults' shyness and sociability: Personality and health correlates. *Personality and Individual Differences*, 19(4), 455-462. doi: 10.1016/0191-8869(95)00083-I.
- Smith, A. L. (2003). Peer relationships in physical activity contexts: A road less traveled in sports, and the American experiment. *New Directions for Child and Adolescent Development*, 2003(99), 53-64. doi: 10.1016/S1469-0292(02)00015-8.
- Tang, A., Santesso, D. L., Segalowitz, S. J., & Schmidt, L. A. (2016). Distinguishing shyness and sociability in children: An event-related potential study. *Journal of Experimental Child Psychology*, 142, 291-311. doi: 10.1016/j.jecp.2015.08.008.
- Teppers, E., Luyckx, K., Vanhalst, J., Klimstra, T., & Goossens, L. (2014). Attitudes Towards Aloneness During Adolescence: A Person-Centred Approach. *Infant and Child Development*, 23(3), 239-248. doi: 10.1002/icd.1856.
- Terrell-Deutsch B. (1999). The conceptualization and measurement of childhood loneliness. In K.J. Rotenberg & S. Hymel (Eds). *Loneliness in childhood and adolescence*. Cambridge, UK: Cambridge University Press.
- Wang, J. M., Rubin, K. H., Laursen, B., Booth-LaForce, C., & Rose-Krasnor, L. (2013). Preference-for-solitude and adjustment difficulties in early and late adolescence. *Journal of Clinical Child & Adolescent Psychology*, 42(6), 834-842. doi: 10.1080/15374416.2013.794700.

APPENDIX A- Demographic questionnaire (Study 1)



FAMILY EMPLOYMENT AND INCOME

Here are some questions about your family's employment and individual and total family income levels and sources. Please answer them as accurately as you can.

A. EMPLOYMENT: Yours and your husband/partner's, if applicable.

1. Do you receive income from your own paid employment?

0 No → Go to Question 2.

1 Yes

If YES, during the most recent month, how much in total were you paid BEFORE taxes and other deductions were removed from your pay-check(s) from ALL jobs combined?

You may choose to answer in any of the following ways, whichever is easier for you:

Hourly total amount \$ _____

Weekly total amount \$ _____

Monthly total amount \$ _____

OR

Annual total amount \$ _____

2. Please now tell us the same information about your husband/partner's job situation. If you do not have a husband or partner living in the home, please circle "not applicable" and skip to Question 3.

Does your household receive income from your husband or partner's paid employment?

0 No → Go to Question 3.

1 Yes

2 Not applicable

If YES, during the most recent month, how much in total was he paid BEFORE taxes and other deductions were removed from his pay-check(s) from ALL jobs combined?

You may choose to answer in any of the following ways, whichever is easier for you:

Hourly total amount \$ _____

Weekly total amount \$ _____

Monthly total amount \$ _____

OR

Annual total amount \$ _____

3. Is there anyone else who lives in your home whose earnings help support your family?

0 No → Go to Question 4.

1 Yes

If YES, what is this person's relationship to you? Circle the number for all that apply.

1 Parent or parent-in-law

2 Brother or brother-in-law

3 Sister or sister-in-law

4 Grandparent or partner's parent

5 Child or stepchild

6 Other related person

7 Non-related person

B. FAMILY INCOME SOURCES AND TOTAL INCOME

4. Families receive income from many sources. We are interested in knowing about your family's sources of income in the last year, that is, during 1999. By family we mean you, your husband/partner, and your children if living in your home.

Circle "1" for Yes or "0" for No beside each source, please.

	Yes	No
a. Child care assistance: tax credits	1	0
b. Unemployment insurance	1	0
c. Workers' compensation	1	0
d. Interest/dividends (savings, stocks, bonds)	1	0
e. Income from rental properties	1	0

5. For the following sources of income, please tell us approximately how much per month each source contributed to your monthly income and for how many months during 1999 the income was received.

Example 1: You received \$250 in child support payments from your ex-spouse every month except for the one summer month that your child spent with him. Line "f" of your form would look like this:

<i>Income Source</i>	<i>Receive</i>	<i>Amount</i>	<i>No. Months</i>
<i>f. Alimony or child support</i>	(1) 0	250	11

- I. For each source of income listed below, circle "1" for YES if your family received income from this source during 1999 or "0" for No if your family did not.

If Yes, please write in the approximate dollar amount of the income received each month and the number of months during 1999 your family received this income.

II.	Income Source	Receive		Amount	No. Months
		Yes	No		
a.	Child care assistance: cash or vouchers	1	0	_____	_____
b.	Social Security	1	0	_____	_____
c.	Disability benefits or SSI Supplemental Security Income	1	0	_____	_____
d.	Food stamps	1	0	_____	_____
e.	Aid to Families with Dependent Children	1	0	_____	_____
f.	Alimony or child support	1	0	_____	_____
g.	Gifts from family or friends out of the household for living expenses	1	0	_____	_____
h.	Refugee assistance	1	0	_____	_____
i.	Foster child payments	1	0	_____	_____
j.	Other private or government pension funds	1	0	_____	_____
k.	Other government assistance	1	0	_____	_____
l.	Any other sources	1	0	_____	_____

-
6. Finally, about how much total income, before taxes, did your family receive during 1999? Please include income from all sources listed in the questions above. By family, we mean you, your husband/partner, and your children, if living in your home.

Circle the income range that your annual income falls within. For example, if your total family annual income for last year was \$22,500, you should circle "5. \$20,001 – \$25,000."

Annual Family Total Income Before Taxes

- 1 Less than \$5,000
- 2 \$5,000 — \$10,000
- 3 \$10,001 — \$15,000
- 4 \$15,001 — \$20,000
- 5 \$20,001 — \$25,000
- 6 \$25,001 — \$30,000
- 7 \$30,001 — \$35,000
- 8 \$35,001 — \$40,000
- 9 \$40,001 — \$45,000
- 10 \$45,001 — \$50,000
- 11 \$50,001 — \$60,000
- 12 \$60,001 — \$70,000
- 13 \$70,001 — \$80,000
- 14 \$80,001 — \$90,000
- 15 \$90,001 — \$100,000
- 16 \$100,001 — \$150,000
- 17 \$150,001 — \$200,000
- 18 \$200,001 — \$250,000
- 19 \$250,001 — \$300,000
- 20 \$300,001 — \$400,000
- 21 \$400,001 — \$500,000
- 22 \$500,001 — and above

APPENDIX B - Affinity for aloneness (Study 1)

0 = Not true

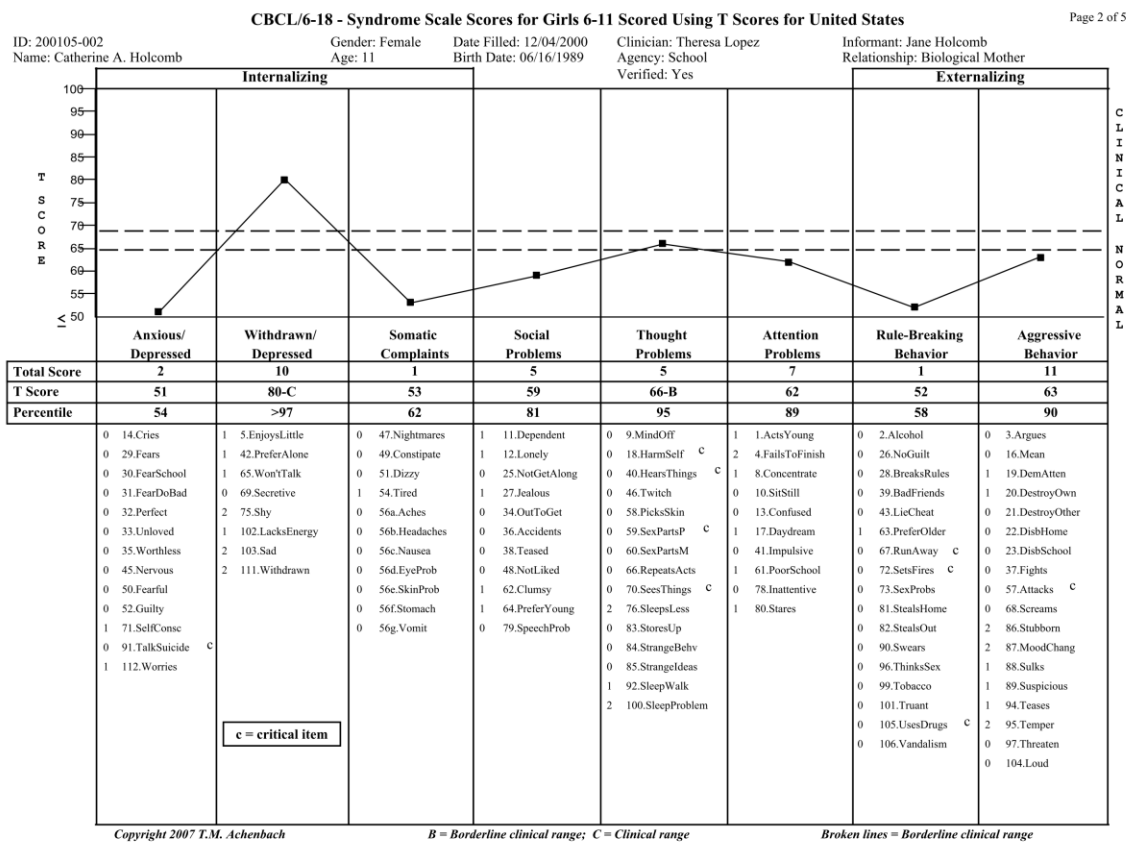
1 = Sometimes true

2 = Often true

1. Likes to be alone.
2. Is a solitary child.
3. Prefers to play alone.
4. Keeps peers at a distance.

APPENDIX C - Shyness (Sutdy 1)

Items 65, 69, 75, 111



APPENDIX D - Social skills (Study 1)

0 = Never

1 = sometimes

2 = very often

1. Uses free time at home in acceptable way
2. Keeps room clean/neat w/out being remind
3. Speaks appropriate tone of voice at home
4. Joins group activities w/out being told
5. Introduces herself/himself to new people
6. Respond approp when hit/pushed by child
7. Asks sales clerks for info/assistance
8. Attends to speakers at meetings
9. Politely refuses unreasonable requests
10. Invites others to your home
11. Congratulates family on accomplishments
12. Makes friends easily
13. Shows interest in a variety of things
14. Avoids situations that result in trouble
15. Puts away toys/other household property
16. Volunteers to help family members w/task
17. Receives criticism well
18. Answers the phone appropriately
19. Helps you w household tasks w/out asked
20. Appropriately question unfair hshld rule

21. **Attemp. hshld ta**ks before asking help
22. Controls temper when arguing **w/oth child**
23. Is liked by others
24. **Starts convers. rather** waiting for other
25. Ends disagreements with you calmly
26. Controls temper/conflict situation w/you
27. Gives compliments to friend/oth children
28. **Complete hshld tasks** in reasonable time
- 29. Asks permission before using other prop**
30. Is self-confident in social situations
31. Requests permission before leaving house
32. Respond appropriately **teasing frm friend**
33. **Uses time approp.** while waiting for help
34. **Accepts friens' ideas** for playing
35. Easily changes from activity to another
- 36. Coop. with family member w/out being ask**
- 37. Acknowledge compliment/praise frm friend**
38. Reports accidents to appropriate persons

APPENDIX E - Friendship quality (Study 1)

Not at all true (0)

A little true (1)

Somewhat true (2)

Pretty true (3)

Really true (4)

1. (Name of friend) & I live close to each other.
2. (Name of friend) and I always sit together at lunch.
3. (Name of friend) & I **ger mad** at each other a lot (R).
4. (Name of friend) tells me I am good at things.
5. (Name of friend) sticks up for me if other talk behind my back.
6. (Name of friend) & I make each other feel important/**spacial**.
7. (Name of friend) & I always tell each other about our problems.
8. (Name of friend) make me feel good about my ideas.
9. Talk about the things that make us mad.
10. (Name of friend) and I argue a lot (R).
11. Give advise with figuring things out.
12. (Name of friend) & I always make up easily when we have a fight.
13. (Name of friend) & I fight (R).
14. (Name of friend) & I **load each** other things all the time.
15. (Name of friend) help me so I can get done quicker.
16. (Name of friend) make up **easliy w**hen we have a fight.

17. (Name of friend) & I get over arguments really quickly.
18. (Name of friend) & I count on each other for good ideas on how to get things done.
19. (Name of friend) does'nt listen to me (R).
20. (Name of friend) & I tell each other private things.

APPENDIX F - Victimization (Study 1)

0 = Not true

1 = Sometimes true

2 = Often true

1. Child is ridiculed by peers.
2. Child is picked on by other children.
3. Child is called names by peers.
4. Is pushed around by by other children.
5. Peers say negative things about him/her.
6. I hit or kicked by other children.

APPENDIX G - Ethics approval study 1



Brock University
Research Ethics Office
Tel: 905-688-5550 ext. 3035
Email: reb@brocku.ca

Social Science Research Ethics Board

Certificate of Ethics Clearance for Human Participant Research

DATE: 6/15/2016
PRINCIPAL INVESTIGATOR: ROSE-KRASNOR, Linda - Psychology
FILE: 14-287 - ROSE-KRASNOR
TYPE: Faculty Research STUDENT: Marina Farrell
SUPERVISOR: Linda Rose-Krasnor
TITLE: Shyness and unsociability - developmental trajectories and outcomes

ETHICS CLEARANCE GRANTED

Type of Clearance: RENEWAL

Initial Clearance Date: 6/3/2015

Expiry Date: 6/30/2017

The Brock University Social Science Research Ethics Board has reviewed the above named research proposal and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement.

Renewed certificate valid from **6/15/2016 to 6/30/2017**.

The Tri-Council Policy Statement requires that ongoing research be monitored by, at a minimum, an annual report. Should your project extend beyond the expiry date, you are required to submit a Renewal form before **6/30/2017**. Continued clearance is contingent on timely submission of reports.

To comply with the Tri-Council Policy Statement, you must also submit a final report upon completion of your project. All report forms can be found on the Research Ethics web page at <http://www.brocku.ca/research/policies-and-forms/research-forms>.

In addition, throughout your research, you must report promptly to the REB:

- a) Changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- b) All adverse and/or unanticipated experiences or events that may have real or potential unfavourable implications for participants;
- c) New information that may adversely affect the safety of the participants or the conduct of the study;
- d) Any changes in your source of funding or new funding to a previously unfunded project.

We wish you success with your research.

Approved:

Kimberly Maich, Chair
Social Science Research Ethics Board

Note: Brock University is accountable for the research carried out in its own jurisdiction or under its auspices and may refuse certain research even though the REB has found it ethically acceptable.

If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of research at that site.

APPENDIX H- Demographics (Study 2)

2008 Youth Resilience Questionnaire

PART A *Let's begin with some information about you.*

1. How old are you? ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 or over
2. Are you male or female? ☐ Male ☐ Female
3. What grade level are the majority of your courses? ☐ Grade 9 ☐ Grade 10 ☐ Grade 11 ☐ Grade 12
4. Were you born in Canada? ☐ Yes ☐ No → If No, how long have you been living in Canada? _____
5. Was your MOTHER/FEMALE GUARDIAN born in Canada? ☐ Yes ☐ No → If No, where was she born? _____
6. Was your FATHER/MALE GUARDIAN born in Canada? ☐ Yes ☐ No → If No, where was he born? _____
7. Other than Canadian, is there another culture or ethnic background that your family belongs to? ☐ Yes ☐ No → If yes, which one?
(Fill in all that apply.)

<input type="radio"/> American	<input type="radio"/> East Indian	<input type="radio"/> Hungarian	<input type="radio"/> Polish	<input type="radio"/> West Indian
<input type="radio"/> British	<input type="radio"/> French	<input type="radio"/> Italian	<input type="radio"/> Russian	<input type="radio"/> Other - Which one? _____
<input type="radio"/> Chinese	<input type="radio"/> German	<input type="radio"/> Korean	<input type="radio"/> Somali	
<input type="radio"/> Dutch	<input type="radio"/> Greek	<input type="radio"/> Native/Aboriginal	<input type="radio"/> Ukrainian	
8. Whom do you live with right now? *(Fill in all that apply)*

<input type="radio"/> Both birth parents	<input type="radio"/> Birth father only	<input type="radio"/> Birth mother only	<input type="radio"/> Birth mother and stepfather
<input type="radio"/> Birth father and stepmother	<input type="radio"/> Neither birth parent	<input type="radio"/> Adoptive parents	<input type="radio"/> Foster parents
<input type="radio"/> Legal guardian	<input type="radio"/> Grandparent(s)	<input type="radio"/> Other relatives	<input type="radio"/> On your own
<input type="radio"/> With roommates	<input type="radio"/> Group home	<input type="radio"/> Other: _____	

APPENDIX I - Depression (Study 2)

Fill in the answer that best describes how often you felt of hahaved this way during the past two weeks.

	Almost always or always	Often	Sometimes	Almost never or never
I was happy				
I did not feel like eating; my appetite was poor				
I felt that I could not stop feeling sad, even with help from my family and friends.				
I felt that I was just as good as other people.				
I had trouble keeping my mind on what I was doing.				
I felt deressed.				
I felt that everything I did was an extra effort.				
I felt hopeful about the furture.				
I though my life had been a failure.				
I fely fearful.				
My sleep was restless.				
I was bothered by things that usually don't bother me.				
I talked less than usual.				
I felt lonely.				
People were unfriendly.				
I felt like doing nothing.				
I had crying spells.				
I felt sad.				
I felt that people disliked me.				

I enjoyed life.

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APPENDIX J - Friendship quality (Study 2)

Think about you FRIENDS and answer the following questions.

	Almost always or always	Often	Sometimes	Almost never or never
My friend can tell when I'm upset about something				
When we discuss things, my friends care about my point of view.				
Taking over my problems with my friends makes me feel ashamed and foolish.				
I wish I had different friends.				
My friends understand me.				
My friends accept me as I am.				
My friends don't understand what I'm going through these days.				
I feel alone or apart when I am with my friends.				
My friends listen to what I have to say.				
My friends are fairly easy to talk to.				
My friends are concerned about my well-being.				
I feel angry with my friends.				
I get upset more than my friends know about.				
It seem as if my friends are irritated with me for no reason.				
I tell my friends about my problems and troubles.				

APPENDIX K - Self-esteem (Study 2)

Fill in the answer that best describes the way you feel.

	Strongly agree	Agree	Neither agree not disagree	Disagree	Strongly disagree
I feel that I have a number of good qualities.					
I am able to do things as well as most people.					
I feel useless at times.					
I feel that I am a person of worth, at least equal with others.					
I wish I could like myself more.					
All In all, I tend to feel that I am a failure.					
At times I think I am no good at all.					
I take a positive attitude toward myself.					

APPENDIX L - Shyness (Study 2)

In the cart below, fill in the answer that best describes you.

	Almost always or always	Often	Sometimes	Almost never or never
I'm quiet when I'm with a group of other people my age.				
I only talk to other people my age that I know really well.				
I feel that other people my age talk about me behind my back.				
I worry about what other people my age think of me.				
I feel that other people my age are making fun of me.				
I'm afraid that other people my age will not like me.				
If I get into an argument with another person, I worry that he or she won't like me.				
I worry about being teased.				
I feel shy with people my age that I don't know.				
I get nervous when I talk to people my age that I don't know very well.				
I worry about doing something new in front of other people my age.				
It's hard for me to ask other people my age to hang out with me.				
I'm afraid to invite other people my age to my house because they might say no.				

APPENDIX M - Life satisfaction (Study 2)

Fill in the circle that best describes you.

	Almost always or always	Often	Sometimes	Almost never or never
In uncertain times, I usually expect the best.				
If something can go wrong for me, it will (R).				
I am happy with my life				
I feel good about my future.				
I don't expect thing to go my way (R).				

APPENDIX N - Affinity for aloneness (Study 2)

For each statement below, fill in the answer that best suits you.

	Almost always or always	Often	Sometimes	Almost never or never
I like to do things on my own at home.				
Being alone helps me to renew my courage.				
I get away from others because they disturb me with their noise.				

APPENDIX O - Stress (Study 2)

Below is a list of daily hassels that commonly bother students. Please indicate how often each one bothers you.

	Almost never bothers me	Sometime bothers me	Often bothers me
Not having enough time.			
Not having enough money.			
My weight.			
Too much school work.			
Not enough close friends.			
Not enough time to talk with my friends.			
Too few dates.			
How I look.			
Problems with roommates.			
Problems with friends.			
Getting to class on time.			
Problems with boyfriend/girlfriend.			
Problems with my family.			
Being lonely.			
Other's opinions of me.			
Not enough sleep/			
Taking exams/tests.			
Household chores.			
Trying to get good marks.			
What I'm going to do after my undergraduate degree is done.			

Thinking about where I'm going to live next year.			
Thinking about picking a major.			
Thinking about finding a summer job.			
Trying to manage both a job and school work.			
Not being able to meet the deadlines for school work.			
If living away from home, missing my family/friends/home.			

APPENDIX P- Ethics approval for study 2



Brock University
Research Ethics Office
Tel: 905-688-5550 ext. 3036
Email: reb@brocku.ca

Social Science Research Ethics Board

Certificate of Ethics Clearance for Human Participant Research

DATE: February 3, 2012
PRINCIPAL INVESTIGATOR: WILLOUGHBY, Teena - Psychology
FILE: 09-118 - WILLOUGHBY
TYPE: Faculty Research STUDENT: SUPERVISOR: Teena Willoughby
TITLE: Stressed @ Brock?

ETHICS CLEARANCE GRANTED

Type of Clearance: MODIFICATION Expiry Date: 1/31/2013

The Brock University Social Sciences Research Ethics Board has reviewed the above named research proposal and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement. Clearance granted from 2/3/2012 to 1/31/2013.

The Tri-Council Policy Statement requires that ongoing research be monitored by, at a minimum, an annual report. Should your project extend beyond the expiry date, you are required to submit a Renewal form before 1/31/2013. Continued clearance is contingent on timely submission of reports.

To comply with the Tri-Council Policy Statement, you must also submit a final report upon completion of your project. All report forms can be found on the Research Ethics web page at <http://www.brocku.ca/research/policies-and-forms/research-forms>.

In addition, throughout your research, you must report promptly to the REB:

- a) Changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- b) All adverse and/or unanticipated experiences or events that may have real or potential unfavourable implications for participants;
- c) New information that may adversely affect the safety of the participants or the conduct of the study;
- d) Any changes in your source of funding or new funding to a previously unfunded project.

We wish you success with your research.

Approved:

Jan Frijters, Chair
Social Sciences Research Ethics Board

Note: Brock University is accountable for the research carried out in its own jurisdiction or under its auspices and may refuse certain research even though the REB has found it ethically acceptable.

If research participants are in the care of a health facility, at a school, or other institution or community organization, it is the responsibility of the Principal Investigator to ensure that the ethical guidelines and clearance of those facilities or institutions are obtained and filed with the REB prior to the initiation of research at that site.

APPENDIX Q - Background Information (Study 3)

The following information is gathered in order to get a better overall understanding of the participants involved. All information is confidential. No personal information will be released.

Child's Name: _____

Child's Birth date: _____ Child's age (in months): _____
dd/ mm/yyyy

Boy: _____ Girl: _____

Siblings? If yes – please list gender and age (in months) for each:

Child's current school/childcare centre/preschool _____

Mother's highest level of formal education completed (please check one):

Elementary school _____
High school diploma or equivalent _____
Community college or equivalent _____
University degree _____
Graduate school degree _____

Father's highest level of formal education completed (please check one):

Elementary school _____
High school diploma or equivalent _____
Community college or equivalent _____
University degree _____
Graduate school degree _____

Parents' Marital status (please check one):

Married/Common Law _____ Single _____
Divorced/Separated _____ Other _____

APPENDIX R - Shyness and unsociability (Study 3)

Please answer the items on this page about the behaviour of your child by *circling* one of the numbers following each item. We know that no item will apply to the child in every situation, but try to consider his/her usual or general behaviour. Please answer all questions-- there are no right or wrong answers.

	Not at All		← →		A Lot
1. My child often seems content to play alone.	1	2	3	4	5
2. My child seems to want to play with other children, but is sometimes nervous to.	1	2	3	4	5
3. My child is just as happy to play quietly by his/herself than to play with a group of children.	1	2	3	4	5
4. My child actively avoids playing with other children.	1	2	3	4	5
5. My child is happiest when playing with other children.	1	2	3	4	5
6. My child will turn down social initiations from other children because he/she is 'shy'.	1	2	3	4	5
7. My child does not want to play with other children.	1	2	3	4	5
8. My child often approaches other children to initiate play.	1	2	3	4	5
9. My child often goes out of his/her way not to play with other children.	1	2	3	4	5
10. My child 'hovers' near where other children are playing, without joining in.	1	2	3	4	5
11. My child rarely initiates play activities with other children.	1	2	3	4	5
12. If given the choice, my child prefers to play with other children rather than alone.	1	2	3	4	5
13. My child will often turn down social invitations from other children because he/she wants to be alone.	1	2	3	4	5
14. My child often watches other children play without approaching them.	1	2	3	4	5
15. My child is just not interested in initiating play activities with other children.	1	2	3	4	5
16. Although he/she appears to desire to play with others, my child is sometimes anxious about interacting with other children.	1	2	3	4	5
17. My child cries easily.	1	2	3	4	5
18. When upset by an unexpected situation, my child quickly calms down.	1	2	3	4	5
19. Whenever my child starts crying, he/she can be easily distracted.	1	2	3	4	5
20. My child tends to be somewhat emotional.	1	2	3	4	5
21. If talked to, my child stops crying.	1	2	3	4	5
22. My child often fusses and cries.	1	2	3	4	5

23. My child gets upset easily.	1	2	3	4	5
24. My child tolerates frustration well.	1	2	3	4	5
25. My child reacts intensely when upset.	1	2	3	4	5
26. My child stops fussing whenever someone talks to him/her or picks him/her up.	1	2	3	4	5

APPENDIX S - Behavioral engagement (Study 3)

Activity Type	Please list the specific activities in each activity category	How often does your child do this type of activity? 1 = not at all; 2 = once or a few times a year; 3 = about once a month; 4 = several times a month; 5 = several times a week	How many years has your child done this type of activity?	Whose idea was it for your child to start doing this type of activity? (e.g., mother, child, child's friend)
Organized sports or lessons (e.g., hockey, gymnastics, swimming lessons)				
Informal physical activities (e.g., swimming with parents)				
Performing arts (e.g., playing music, dance)				
Playgroups (e.g., community centres)				
Community recreation programs (e.g., Kinder Kids)				
Hobbies (e.g., crafts, collecting things)				
Playing video or computer games				
Playing with friends				
Other activity (please describe):				

APPENDIX T - Psychological engagment (Study 3)

Using the scale of 0-4 below, please rate the characteristics of each type of activity by placing the appropriate number on the line next to each item.

0= Not at all **1**= A little bit **2**= A moderate amount **3**= Quite a bit **4**= Very much

Activity	How much fun is this activity for your child?	How stressful is this activity for your child?	How good is your child at this activity?	How important is this activity for your child?	How interesting is this activity for your child?
Organized sports or lessons					
Informal physical activities					
Performing arts					
Playgroups					
Community recreation programs					
Hobbies					
Playing video or computer games					
Playgroups with friends					
Other activity (please describe):					

APPENDIX U - Positive activity outcomes (Study 3)

Now please think about your child's activities (e.g., sports, arts, playgroups, hobbies, etc.). Overall, how much do you think your child's activity participation is helping him or her develop each of the following?

	Not at All	A little bit	A moderate amount	Quite a bit	Very much
Personal or family values	1	2	3	4	5
Self-esteem, self-confidence, and self-awareness	1	2	3	4	5
Discipline and responsibility	1	2	3	4	5
Commitment and follow-through	1	2	3	4	5
Respect for others	1	2	3	4	5
Teamwork and fair play	1	2	3	4	5
Helping behaviors and community service	1	2	3	4	5
Academic skills	1	2	3	4	5
Social skills	1	2	3	4	5
Ability to adapt to different environments and people	1	2	3	4	5
Having fun	1	2	3	4	5
Physical and motor skills	1	2	3	4	5
Identifying your child's talents and passions	1	2	3	4	5
Keeping out of trouble	1	2	3	4	5
Overcoming shyness or social anxiety	1	2	3	4	5
Reducing aggression.	1	2	3	4	5

APPENDIX V - Ethics approval for Study 3



Brock University
Research Ethics Office
Tel: 905-688-5550 ext. 3035
Email: reb@brocku.ca

Social Science Research Ethics Board

Certificate of Ethics Clearance for Human Participant Research

DATE: 10/21/2015
PRINCIPAL INVESTIGATOR: COPLAN, Robert - Psychology
FILE: 14-088 - COPLAN
TYPE: Faculty Research STUDENT:
SUPERVISOR:
TITLE: Carleton Friendship Study

ETHICS CLEARANCE GRANTED

Type of Clearance: RENEWAL

Initial Clearance Date: 10/20/2014

Expiry Date: 10/31/2016

The Brock University Social Science Research Ethics Board has reviewed the above named research proposal and considers the procedures, as described by the applicant, to conform to the University's ethical standards and the Tri-Council Policy Statement.

Renewed certificate valid from **10/21/2015 to 10/31/2016**.

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We wish you success with your research.

Approved:

Kimberly Maich, Chair
Social Science Research Ethics Board

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